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ABSTRACT

This study tests the hypothesis that disadvantaged children learn more from interaction with advantaged children in Head Start classrooms than when grouped solely with other disadvantaged children. Subjects were 32 disadvantaged children who were assigned to two experimental groups of eight each and a control group of 16. Eight advantaged children were added to each of the experimental groups. Teachers assigned to all three classes were similar in experience, teaching style and demographic characteristics. Variables of chief interest in this study were cognition, language, and socialization. Pre- and posttests on a variety of standardized and specially developed instruments evaluated the performance of all children. Videotapes were used to assess socio-emotional behaviors such as aggression and dependency. When comparisons were made between control and experimental groups results indicated support for increased educability in classes holding a higher percentage of advantaged peers. Consistent gains were evident although significance at the .05 level was not reached. The experimental children gained in task persistence and verbal skills; aggressive and dependent behaviors decreased; and self concepts improved. (WY)

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Head Start Evaluation and Research Center

1967-68

MICHIGAN STATE UNIVERSITY
COLLEGE OF HOME ECONOMICS
in cooperation with the
MERRILL-PALMER INSTITUTE

HETEROGENEOUS VS. HOMOGENEOUS SOCIAL CLASS GROUPING OF PRESCHOOL CHILDREN IN HEAD START CLASSROOMS

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Introduction and Background

With the advent of programs planned specifically for the disadvantaged has come also the problem that such programs by definition single out the disadvantaged and isolate them from the rest of society as the special program is conducted. Such isolation is often necessary if the program is to have maximal impact upon the group it serves by focusing all its resources on that group. But isolation such as is required, for example, by the Head Start guidelines' recommendation (of 90% disadvantaged children per class) must also be balanced against the adverse effects that isolation might have upon the very individuals a program seeks to serve.

The Head Start program raises this problem as a very real dilemma between two alternative courses of action. Head Start as it operates normally focuses on disadvantaged children in a context which separates them from the rest of society and seeks to influence them through classroom and family intervention. The classes are held in and for the disadvantaged neighborhood, and the teacher provides the only link with the world outside the ghetto, be that ghetto an Indian reservation or a block of tenements. It is exactly this kind of education, however, that has gained disapproval in recent years. The U.S. Commission on Civil Rights' report, Racial Isolation in the Public Schools, the Coleman report, and the report of the National Advisory Commission on Civil Disorders all support the position that racial isolation in education is debilitating and only perpetuates the already overwhelming problem of a segmented educational system for a socioeconomically segregated society. The solution offered

by these reports is based on the proposition that interracial and interclass contact is an essential component of quality education. For Head Start children, this means that we cannot adequately prepare children for the diverse society they will meet as school children and later as adults by isolating them from the culturally and economically more advantaged groups.

Quite clearly an alternative to the normal Head Start procedure is demanded by these considerations. In order to provide for Head Start children the most enriching experiences, it is necessary to build into those experiences contact with the rest of society -- those culturally and economically more advantaged children with whom they will be interacting all their lives.

Contact with advantaged children is not to be sought for Head Start children only for the abstract benefits of acquaintance with another socio-economic/cultural group, however. There is ample evidence to support the contention that children learn from one another in any social setting; it is reasonable to hypothesize then that disadvantaged children would learn from the advantaged children with whom they interact. It is this hypothesis on which the present study was based. It was not to be expected, however, that contact with advantaged children would as if "by magic" have a universally beneficial effect upon the disadvantaged child; rather, it was hypothesized that those characteristics of middle class children's traditional advantage over lower-class children would show the greatest effect on the Head Start children.

The variables of chief interest in this study were three, judged to be areas in which it was most likely that repeated contact with advantaged children would benefit the Head Start children. <u>The first, cognition</u>, was

chosen because of the obvious importance of cognitive functioning in the early school years. Deutsch (1963) points out that while the relationships between socioeconomic background and school performance is not a simple one, the effects are seen first in perceptual, language, and cognitive behaviors. Others (e.g. Miller and Swanson, 1960) point out that when some childrearing patterns typical of middle-class homes are used, the child develops more abstract, symbolic, "idea-oriented" cognition patterns, while childrearing patterns typical of lower-class homes tend to produce more concrete, "thing-oriented," non-verbal cognition. Since advantaged children generally have more practice with abstraction and other cognitive behaviors in their first years of life, and it was hypothesized that some of this experience could well influence the disadvantaged child.

The second variable considered in this study, language, was chosen because of the importance of language in the accumulative gap between disadvantaged and advantaged schoolchildren. Among children who come from disadvantaged backgrounds there is a high proportion of school failure associated with reading and other language-related disabilities. Goldberg (1967) suggests that verbal and symbolic experiences lay the foundation for later academic achievement; she notes further that the likelihood of middle-class children's having these experiences is much greater than for lower-class children. It was hypothesized that the language model presented by the advantaged child would be an influence upon the disadvantaged child's language patterns, and the influence of this model would be evident in the Head Start child's increased language facility.

Socialization, the third variable examined in this study, was selected because advantaged children's socialization patterns more closely resemble the expectations for constructive social interaction common in public school situations, while disadvantaged children less often demonstrate the patterns of socialization acceptable to the schools. It was hypothesized that a disadvantaged child exposed to advantaged children's socialization patterns would tend to adopt some of these patterns for himself.

In this study the contact with advantaged children was the intervention introduced into the otherwise normal Head Start program. The major objective of the study was to investigate the effects on disadvantaged children of introducing these advantaged children into Head Start classes. It was presumed that the intervention would be an enrichment in Head Start children's preschool experience and would be manifest in certain measurable changes taking place in the Head Start children.

Procedure

Design

Three classes in the Lansing, Michigan Head Start program were designated as experimental classes. Thirty-two disadvantaged children were assigned to the classes in such a way that two classes included eight disadvantaged children each and one class, the control group, was composed of sixteen disadvantaged. To the two classes of eight disadvantaged children each were added eight advantaged children, bringing the total in each group to sixteen. The teachers assigned to the three classes were as much alike as was possible regarding experience, teaching style, and demographic characteristics. The design for analysis purposes was a pre-post comparisons plan.

Sample

The population from which the sample for this study was drawn is the group of Head Start-eligible children residing in the district served by the Capitol Area Economic Opportunity Commission of Lansing, Michigan. This population of children is approximately half Negro, one-third white, and the remainder Spanish-American. When the sample of four-year olds for the special classes arranged for this study was drawn from among the available children, this racial distribution was maintained. Each group of eight children in the sample was composed of four Negro children, three white children and one Spanish-American child. Attrition through the year changed these numbers somewhat, but the general balance was maintained (see Table 1; numbers after attrition are in parentheses).

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TABLE 1.

Racial Distribution of Sample Children

Experimental Group One	Experimental Group Two	Control Group
4 Disadv. Negro (4)	4 Disadv. Negro (3)	8 Disadv. Negro (6)
3 Disadv. White (3)	3 Disadv. White (3)	6 Disadv. White (5)
1 Disadv. Span-Amer. (1)	1 Disadv. Span-Amer. (1)	2 Disadv. Span-Am. (2)
4 Advantaged Negro (2)	4 Advantaged Negro (4)	
3 Advantaged White (3)	3 Advantaged White (3)	
1 Advan. Span-Amer. (0)	1 Advan. Span-Amer. (0)	

Design Limitations

In the ideal study of advantaged children's effects upon disadvantaged children, two additional factors would be controlled or accounted for in some way. First, in a study such as this, the teacher's influence is always a confounding factor. No matter how carefully teachers are matched across groups, or how scrupulous the randomization, it is difficult to separate teacher effects from treatment effects or from differences among children. Further, the methodology of assessing teacher effects is not advanced enough to permit the partialing out of the teacher variable. Logistically it is next to impossible to account for teacher effects by having one teacher work with two classes, one experimental and one control, although this plan might approach the ideal. In this study, the teachers' influence was markedly important, seriously confounding the results.

A second ideal design feature would be an adjustment of the treatment effects. Pettigrew's research has demonstrated that as the proportions of white and Negro children change in mixed classrooms, so also do the effects of the mixture on the children. In the Head Start situations, it

would be wisest to investigate the various effects of different "mixtures" of advantaged and disadvantaged children. It is hoped that this idea can be incorporated in future studies since the limited nature of this pilot study made such a line of investigation impossible.

Instrumentation

Cognitive behaviors were measured using two major instruments, the Weschler Preschool and Primary Scale of Intelligence (WPPSI), and the Cincinnati Autonomy Test Battery (CATB). In addition, several of the other instruments described below contain scales relevant to cognitive functioning; results from these additional measures were used to supplement the WPPSI and CATB results.

The Weschler Preschool and Primary Scale of Intelligence was developed particularly for use with children of ages 4 through 6½. It is similar in concept and method to the other Weschler tests in that the subtests which comprise the verbal, performance and total IQ scores may also be treated as separate measurements of different abilities (Weschler, 1963, 1-2). The subtests in order of presentation, include:

Information
Animal House
Vocabulary
Picture Completion
Arithmetic
Mazes
Geometric Design
Similarities
Block Design
Comprehension

These subtest scores, plus the Verbal IQ, Performance IQ, and Total IQ scores provided one basis for analyses of cognitive effects.

Reference is to test manual.

The Cincinnati Autonomy Test Battery measures several "autonomous" behaviors, that is, "self regulating behaviors that facilitate effective problem-solving"(Banta, 1968).

> Effective problem solving does not necessarily mean the achievement of correct solutions to conventional problems, but rather the development of behaviors which are useful in a world that presents problems demanding creative as well as conventional solutions. It may be much more important for early childhood education to be concerned with the care and nurturance of these emerging tendencies than to be concerned only with conventional problems. (Banta, 1968).

The CATB tests "are concerned with the ways in which a child solves a problem, not just his ability to perform a task 'correctly'..." The CATB, in its present form provides test scores on fourteen basic variables...

Curiosity: Tendency to explore, manipulate, investigate, and discover in relation to novel stimuli.

Innovative Behavior: Tendency to generate alternative solutions to problems.

Impulse Control: Tendency to restrain motor activity when the task demands it.

Reflectivity: Tendency to wait before making a response that requires analytic thinking, when the task demands it.

Incidental Learning: Tendency to acquire information not referred to in the instructional stimuli.

Intentional Learning: Tendency to acquire information specified in the instructional stimuli.

Persistence: Attention to a problem with solution-oriented behavior where the goal is specified.

Resistance to Distraction: Persistence, with distracting stimuli present.

Reference is to Banta, Thomas J., "Tests for the Evaluation of Early Childhood Education: The Cincinnati Autonomy Test Battery (CATB)," undated mimeo paper, to be published in Volume I of Cognitive Studies, 1968.

Field Independence: Tendency to separate an item from the field or context of which it is a part.

Task Competence: Ratings of tendency to deal effectively with problems of many kinds.

Social Competence: Ratings of ability to work comfortably with adults.

Kindergarten Prognosis: Ratings of ability to do well in conventional kindergarten.

Curiosity Verbalization: Tendency to talk to self or tester about a novel object while exploring it.

Fantasy-Related Verbalization: Tendency to engage in fantasy, expressed while exploring a novel object. (Banta, 1968, 3-4).

The CATB was chosen for inclusion in the present study because of it obvious value as a supplement to the traditional intelligence measures as represented by the WPPSI. The variables tapped by this instrument are not closely related to measured intelligence, but represent instead other behaviors which are related nevertheless to school behavior. The CATB is unusually well-suited for use with the disadvantaged child because it relies very little on verbal cues and is so administered that a child's understanding of the task is assured before his performance is actually measured -- there is no chance of a low score due to misunderstanding of instructions.

Language skill was measured in this study using three sets of measurements: (1) verbal portions of the WPPSI, (2) subscales of the CATB incorporating verbal responses, and (3) ratings from the Videotape Rating Scale (see discussion below) which focus on the child's use of language.

The twelve measurements of language or language-related behavior were:

WPPSI Subtests
- Verbal IQ
- Information
- Comprehension
- Vocabulary
- Similarities

CATB Subtests
- Incidental Learning
- Curiosity Verbalizations
- Fantasy-related Verbalizations

VRF Ratings
- Use of Elaborated Code
- Complete Sentences
- Variety of Verbs
- Descriptive Adjectives

Three major instruments were used to measure socialization, the Kansas Social Interaction Observation Procedure (SIOP), the M.S.U. Videotape Rating Form (VRF) and the Parten-Newell Teacher Rating of Play Behavior. Data for the SIOP and VRF were collected simultaneously by a timed observation schedule procedure. While the SIOP observer was in the classroom collecting objective data on a particular child's social interactions, a second observer took anecdotal records of the observed child's behavior, and a remote control camera videotaped the same behavior. This observation, videotaping session was repeated three times, yielding three five-minute segments of raw data on the child's free play behavior during the one week taping session. These three sources of data (SIOP, anecdotal records and videotape segment) were used by the two observers to complete the VRF ratings.

The SIOP was designed to measure the frequency of various types of interaction among two or more persons during free play activities in the classroom. The scale was originally developed for use in the

national Head Start evaluation as a procedure for describing peer-child and adult-child interactions. While the SIOP was designed to yield quantitative data on 106 variables, only twenty-nine of these variables were selected for intensive investigation in the present study. The variables that were selected focus on verbal and nonverbal interactions among the child, his peers and/or adults in the classroom. Following is a list and brief definitions of these 29 variables:

1. Σ Verbal Interactions S and A: The frequency of verbal interactions between the observed child and an adult.

2. Σ Verbal Interactions S and P: The frequency of verbal interactions between the observed child and a peer.

3. Σ Nonverbal Interactions S and A: The frequency of nonverbal interactions between the observed child and an adult.

4. Σ Nonverbal Interactions S and P: The frequency of nonverbal interactions between the observed child and a peer.

5. Σ Verbal-Nonverbal Interactions S and A: The frequency of interactions containing <u>both</u> verbal and nonverbal cues between the observed child and an adult.

6. Σ Verbal-Nonverbal Interactions S and P: The frequency of interactions containing <u>both</u> verbal and nonverbal cues between the observed child and a peer.

7. Total Verbal Interactions: The frequency of all verbal interactions between the observed child and another person.

8. Total Nonverbal Interactions: The frequency of nonverbal interactions between an observed child and another person.

9. Total Verbal-Nonverbal Interactions: The frequency of interactions containing <u>both</u> verbal and nonverbal cues between an observed child and another person.

10. Σ S and A Interactions: The frequency of social interactions between an observed child and an adult.

11. Σ S and P Interactions: The frequency of social interactions between an observed child and a peer.

12. Total Verbal Initiations by S: The frequency of verbal initiations made by the observed child.

13. Total Nonverbal Initiations by S: The frequency of nonverbal initiations made by the observed child.

14. Total Verbal Responses by S: The frequency of verbal responses made by the observed child.

15. Total Nonverbal Responses by S: The frequency of nonverbal responses made by the observed child.

16. S to A Initiations Responded to: The frequency of initiations made by the observed child to an adult that is responded to by the adult.

17. S to P Initiations Responded to: The frequency of initiations made by the observed child to a peer that are responded to by the peer.

18. A to S Initiations Responded to: The frequency of initiations made by an adult to the observed child that are responded to by the child.

19. P to S Initiations Responded to: The frequency of initiations made by a peer to the observed child that are responded to by the child.

20. Total Initiations Responded to: The frequency of initiations made either to or by the observed child that are responded to.

21. S to A Initiations Not Responded to: The frequency of initiations made by the observed child to an adult that are not responded to by the adult.

22. S to P Initiations Not Responded to: The frequency of initiations made by the observed child to a peer that are not responded to by the peer.

23. A to S Initiations Not Responded to: The frequency of initiations made by an adult to the observed child that are not responded to by the child.

24. P to S Initiations Not Responded to: The frequency of initiations made by a peer to the observed child that are not responded to by the child.

25. Total Initiations Not Responded to: The frequency of initiations made either to or by the observed child that are not responded to.

26. Total S to A Interactions: The frequency of interactions with the observed child initiating to an adult.

27. Total S to P Interactions: The frequency of interactions with the observed child initiating to a peer.

28. Total A to S Interactions: The frequency of interactions with an adult initiating to the observed child.

29. Total P to S Interactions: The frequency of interactions with a peer initiating to the observed child.

The V.R.F. was developed primarily to investigate the quality, as well as the quantity, of these behaviors. As stated before, the timed segments from the S.I.O.P. anecdotal records and the videotape segment were compiled to provide the data that the two observers used to complete the V.R.F. ratings.

The V.R.F. is used to count the frequency of four types of interactions: child to peer, peer to child, child to adult, and adult to child. The form also rates for each interaction the complexity, the firmness, the type of compliance, and whether the initiation of the interaction was a request or a directive. Aggressive, sympathetic, and dependency behaviors are recorded when they occur. (See Appendix for more complete description of variables). These data are generated for each child for each of the three five-minute time segments. In addition, after the raters have completed a five-minute time segment for a child, a summary V.R.F. is completed. This twelve-item rating scale is used to measure factors that affect the quality of

socialization behaviors. The factors are:

1. Elaborate-restricted verbal code
2. Always-never uses complete sentences
3. Large variety of verbs-no verbs
4. Many-no descriptive adjectives
5. Long-short attention span
6. Dramatic play a great deal-rarely
7. Accepts-does not accept delayed goal
8. Independent (leader) - dependent (follower)
9. Active-passive
10. Variety of activities
11. Innovative-imitative
12. Positive-negative relationship with teacher

The ratings for the three five-minute segments for each child were added together. The twelve summary V.R.F. scores were used as the data for analysis. (See Appendix for further description of these twelve dimensions).

The post videotape data was collected and rated by a different team of observers than the team that had collected the pre data. After training the new team on the procedure for taping, the two teams (four observers) went into one of the experimental classrooms and taped the play behavior of eight children. The teams then rated these data independent of one another. These ratings allowed the investigators to calculate an interteam reliability coefficient for each of the major variables: Interchange-subjects involved, request or directive, clarity of the request or directive, complexities of the request or directive, and type of compliance. The degree of overlap between the two teams on each basic variable was computed. These coefficients, which may be viewed as coefficients of "reproducibility" or accuracy of prediction from one rater to the other, appear in Table 2.

TABLE 2

Interjudge Reliability of the Video Rating Form

Rating Scale	Coefficient
Interchange - subjects involved	.965
Request or directive	.793
Clarity of request or directive	.655
Complexity of " " "	.862
Compliance	.586

Reliability analysis of the twelve general ratings together yielded a Pearson Product-Moment correlation of .811.

Ratings of the child's social behavior were also developed using the Parten and Newell system for classifying social interaction. The teacher recorded at three prearranged moments in the day which of six categories of behavior the child was exhibiting at the moment. The six categories are: unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, and cooperative play. This procedure was followed for five consecutive days. Data were generated that represented the proportion of each child's play behavior in each of the six categories.

In addition to the instruments used as described above to measure the three variables about which major hypotheses were made, several other instruments were used in this study as part of several ongoing instrument-development studies. One instrument was part of a study of the child's first four years of life as they related to certain cognitive and social measures taken at age four (Weber, 1968). A second instrument used experimentally in this study was the Play-Situation-Picture-Board Sociometric, a measure devised by Boger for use in the 1967-68 national Head Start evaluation. This instrument uses pictures of toys (dolls, blocks, etc.) and play situations (sandbox, trikes, etc.) to elicit from the child a choice of classmates (whose Polaroid pictures are mounted on a board) with whom he would like to share the activity. Although the sociometric instrument was in the early stages of development, the data obtained from the instrument was used to supplement the other measurements of social interaction.

A third instrument used somewhat experimentally within this study was the Brown IDS Self Concept Referents Test. This instrument, also used by the 1967-68 Head Start Evaluation, measures the strength of the child's self-concept by asking him to report which of a series of bipolar adjectives best characterize him in his own and others' estimation. Some tentative hypotheses might have been made regarding the self-concepts of the experimental group versus the control group, but the concept and instrumentation were so tentative that it seemed best to conduct this portion of the data analysis as an exploratory analysis.

Analysis Procedures Preliminary Results

Major analyses are being centered on the primary hypothesis of the study, that disadvantaged children should benefit from exposure to and interaction with advantaged children. The comparisons being made are between the one control and two experimental groups of disadvantaged children. Data analyses of the measurements from the instruments described above and for the most part F-tests on the pre-post gains exhibited by the control and experimental groups.

A sub-analysis was conducted for the purpose of identifying statistical outliers in the data as it related to change scores. This involved eliminating the statistical outliers from the data as they were identified and recalculating the appropriate analysis of variance.

Attrition

Due to attrition during the year, as is seen in Table 1, the sample sizes of the experimental and control groups did change somewhat. Although

losses were not great in mumber and the general ethnic balance was maintained, there was a reasonable loss of subjects (Experimental 1, 18.75%, Experimental 2, 12.5% and Control, 18.75%) in relation to the initial size of their samples. Considering pre and post-test measures, the attrition factor did limit the number of subjects that could be utilized in any analysis of change due to treatment. Under normal testing conditions the difference between the means of the pre scores and the post scores should in theory be equal to the mean change score. Looking at Table 5, we see that due to attrition between pre and post-testing, the difference between the means of the two scores is not equal to the mean gain, each having been computed for a different number of subjects. In relation to the obtained data presented in Table 5, the difference between the means, on one measure (WPPSI, Verbal IQ), is as much as 4.22 scale units above the mean gain measure. The presentation of the data, in all subsequent like tables, will follow the same format as that in Table 5.

Results: Comparisons between Experimental and Control Groups

Cognitive Effects: Intelligence

Differences between the experimental and control groups were tested for pre-test, post-test and gain score data using one-way analysis of variance. The pre-test analysis was conducted to test the assumption that no differences between the groups existed at the outset of the study. The results of this analysis confirmed the assumption: no differences among the three groups were found using the F test.

A similar analysis of variance for post-test data was performed, and resulted again in no differences among the groups.

A third analysis of variance, performed on gain scores, yielded several differences between the experimental groups. These results appear in Table 3. A Scheffe post-hoc analysis of the full-scale I.Q. analysis of variance results demonstrated that the first experimental class had somewhat larger gain scores than did the second experimental class ($P \leq .10$). Another post-hoc analysis of the performance I.Q. gainscores demonstrated differences between the Experimental 1 scores and Experimental 2 scores, and between the Control class scores and Experimental 2 scores. Last, a post-hoc analysis of the Block Design scores indicated that the difference is between Experimental 1 and Control ($P \leq .05$) and Experimental 1 and Experimental 2 ($P \leq .10$). In summary, while these differences in Full-Scale I.Q., Performance I.Q. and Block Design scores are all interrelated, they do demonstrate the pervasiveness of the experimental group's superiority in some aspects of performance.

TABLE 3

Results of Comparisons between Control and Experimental Groups on WPPSI

	Mean Gain Scores				
WPPSI Scale	Exp. I	Exp. 2	Control	F	P
Full Scale	10.63	.714	5.90	2.66	.091
Verbal	8.56	.285	3.81	1.53	.237
Performance	9.50	.285	7.27	2.49	.104
Information	1.25	.428	.636	.234	.792
Vocabulary	1.875	.000	.181	1.24	.307
Arithmetic	- .75	- 1.00	.90	1.54	.234
Similarities	2.13	.857	.090	1.13	.339
Comprehension	2.38	.142	1.00	1.20	.319
Animal House	.500	2.00	1.90	.582	.567
Picture Completion	1.63	.143	1.36	.615	.549
Mazes	.625	.571	1.90	.108	.897
Geometric Design	1.13	- .143	.727	.748	.484
Block Design	2.88	.429	.182	3.85	.036

Cognitive Effects: Autonomous Functioning

The results of a one-way analysis of variance on the pretest C.A.T.B. scores confirmed the assumption of no difference among the three groups on all but one variable, Task Initiation ($F = 4.04$, $P \leq .03$). A similar analysis of variance of post-test data demonstrated no significant differences among the three groups at the .05 level.

An analysis of variance of gain scores yielded several significant differences among the three groups. The means and analysis results are reported in Table 4. The experimental groups demonstrated greater gains in Field Independence ($P \leq .04$), Resistance to Distraction ($P \leq .002$), and Fantasy-Related Verbalization ($P \leq .09$), while showing negative gains (compared to no gains for the controls) on Task Initiation. No differences at less than $P \leq .10$ were found in the other scales.

The gain in resistance to distraction is perhaps the most noteworthy, for a key hypothesis in the study projected the increased ability to attend on the part of disadvantaged children in the heterogeneously socially grouped experimental classes. These results would tend to bear out these expectations. On the other hand, the decrease or regression on the part of the experimental groups with regard to Task Initiation would seem to indicate that, although better able to deal with behavioral tasks requiring attention over a period of time, these children's confidence or willingness to initiate tasks may in fact be inhibited by the mandatory interaction with their more capable peers. The results of the gains in Field Independence are equivocal at best since one of the experimental groups gains considerably more than the control group while the other does

TABLE 4

Results of Comparisons between Control and Experimental Groups on CATB Measures

	Mean Gain Scores				
	Exp. 1	Exp. 2	Cont.	F	P
Task Initiation	-1.38	-1.166	.000	3.59	.04
Curiosity Box-verbal	3.00	3.20	4.82	2.20	.14
Innovative Behavior	1.00	- .500	1.91	.502	.61
Reflectivity	.606	1.40	1.70	.589	.57
Field Independence	1.25	4.50	1.45	3.86	.04
Motor impulse control avg.	.018	- .017	.163	.300	.74
Incidental Learning	.857	.833	-.182	1.15	.34
Intentional learning	.857	1.33	1.82	.42	.66
Persistence	7.5	3.17	1.45	2.18	.14
Resistance to Distraction	6.13	5.66	-3.09	8.23	.002
Task competence	1.375	1.56	.818	.051	.95
Social competence	-.250	2.50	1.36	.853	.44
Kindergarten Prognosis	.125	.833	.455	.623	.55
Curiosity Box-verbal	2.86	-.406	.545	1.65	.22
Fantasy Related-verbal	.142	1.20	-1.36	2.713	.09

not. This task, however, is attentional in nature (imbedded figures) and a positive interpretation of these results supports the conclusion that the experimental children did in fact increase their attentional abilities more than the controls.

Verbal Skills

For the measurement of verbal skills, those components of the WPPSI, CATB, and Videotape Rating Form which depend upon verbal ability or language use were extracted and analyzed especially for their implications regarding the children's use of language. For a graphic presentation of the data in Table 5, see Figures 1 through 12.

WPPSI subtests.-- The results of the one-way analyses of variance calculated for all measurements of verbal skills are presented in Table 5. No differences among the two experimental and one control groups were found on pre-test, post-test or gain scores.

CATB subtests.-- The results presented in Table 5 for the CATB verbal-related subtests show that differences occurred only on the Fantasy-Related verbalization subtest. The two experimental groups gained, while the control group declined, in quantity of fantasy-related verbalizations observed during the CATB administration. While fantasy-related verbalization is not a measure of the more intellectual or constructive use of language, it does measure the extent to which the child verbalizes rather than remaining silent. Inasmuch as use of language is traditionally a problem in

TABLE 5

Results for Experimental and Control Classes on Verbal Measurements

Measurement	Source of Data	Mean Scores Exp. 1	Exp. 2	Cont.	F	P
WPPSI Verbal IQ	Pre	79.93	83.63	86.36	.428	.66
	Post	88.13	88.14	85.31	.104	.90
	Gain	8.50	.29	3.82	1.530	.24
WPPSI Information	Pre	6.63	6.65	7.18	.259	.77
	Post	7.87	7.43	7.00	.251	.78
	Gain	1.25	.43	.64	.234	.79
WPPSI Comprehension	Pre	6.00	7.38	7.09	.598	.56
	Post	8.38	8.14	7.46	.245	.78
	Gain	2.38	.14	1.00	1.200	.32
WPPSI Vocabulary	Pre	6.75	7.63	8.09	.697	.51
	Post	8.63	8.29	7.46	.533	.58
	Gain	1.88	0.00	.18	1.240	.31
WPPSI Similarities	Pre	6.25	8.25	9.09	1.490	.25
	Post	8.38	9.86	8.31	.398	.68
	Gain	2.13	.86	.09	1.130	.34
CATB Incidental Learning	Pre	1.67	1.67	2.67	.925	.42
	Post	1.71	1.57	2.22	.922	.41
	Gain	.86	.83	- .18	1.150	.34
CATB Curiosity Verbalizations	Pre	3.50	8.25	5.00	2.660	.12
	Post	5.67	7.75	5.00	.801	.47
	Gain	2.86	- .41	.55	1.650	.22
CATB Fantasy-Related Verbalizations	Pre	1.00	2.00	3.00	3.500	.08
	Post	1.33	4.50	3.00	3.780	.09
	Gain	.14	1.20	-1.36	2.710	.09
VRF Elaborated Code	Pre	9.38	8.38	6.57	1.57	.23
	Post	9.25	8.38	7.78	.232	.79
VRF Complete Sentences	Pre	8.63	7.38	5.29	2.51	.10
	Post	5.00	4.50	4.21	.165	.85
VRF Variety of Verbs	Pre	9.38	7.63	6.07	2.41	.11
	Post	5.63	6.25	6.29	.080	.92
VRF Descriptive Adjectives	Pre	12.38	10.63	8.64	1.81	.18
	Post	11.63	9.00	11.50	.504	.61

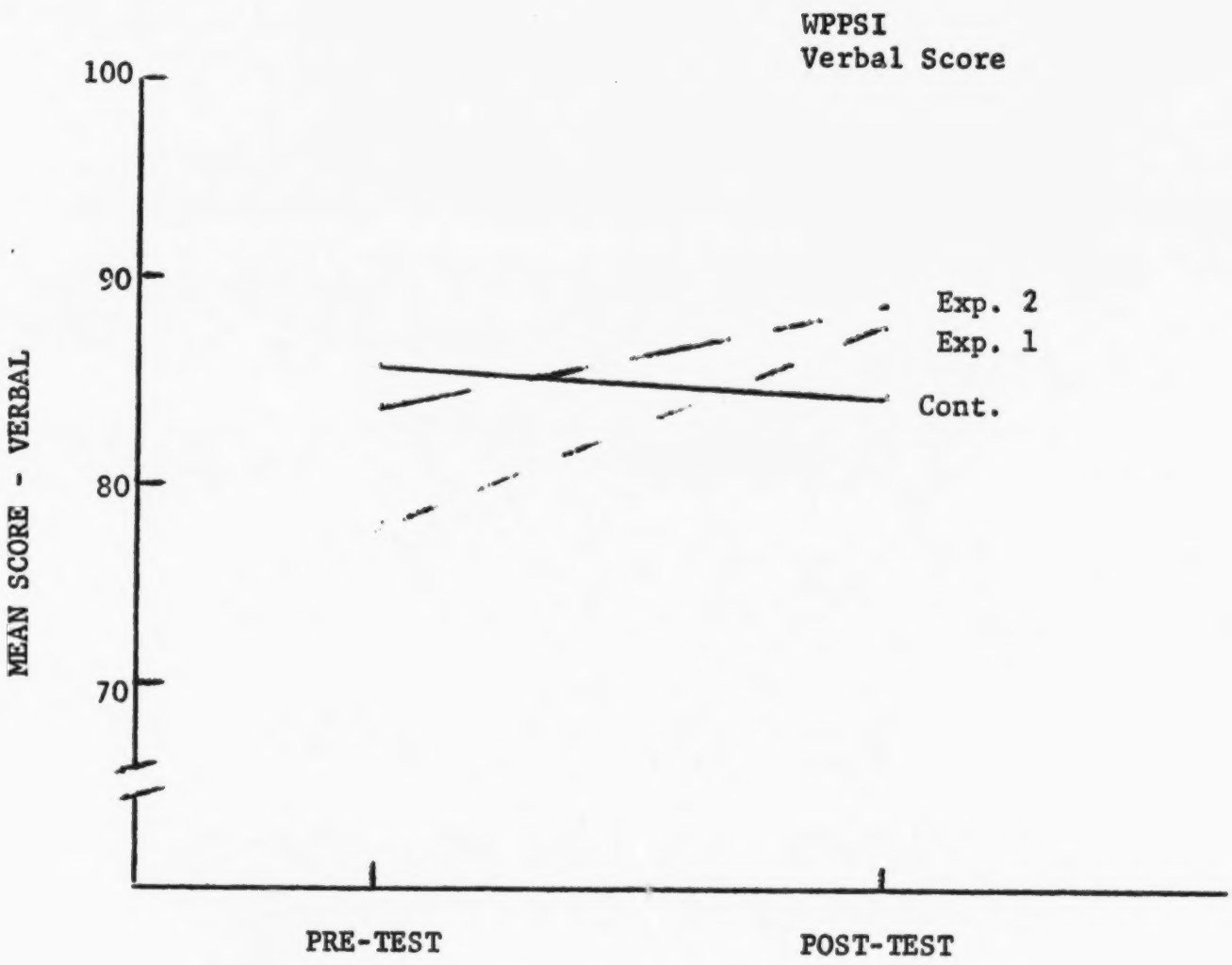
WPPSI
Verbal Score
MEAN SCORE - VERBAL
100
90
80
70
Exp. 2
Exp. 1
Cont.
PRE-TEST
POST-TEST

Figure 1

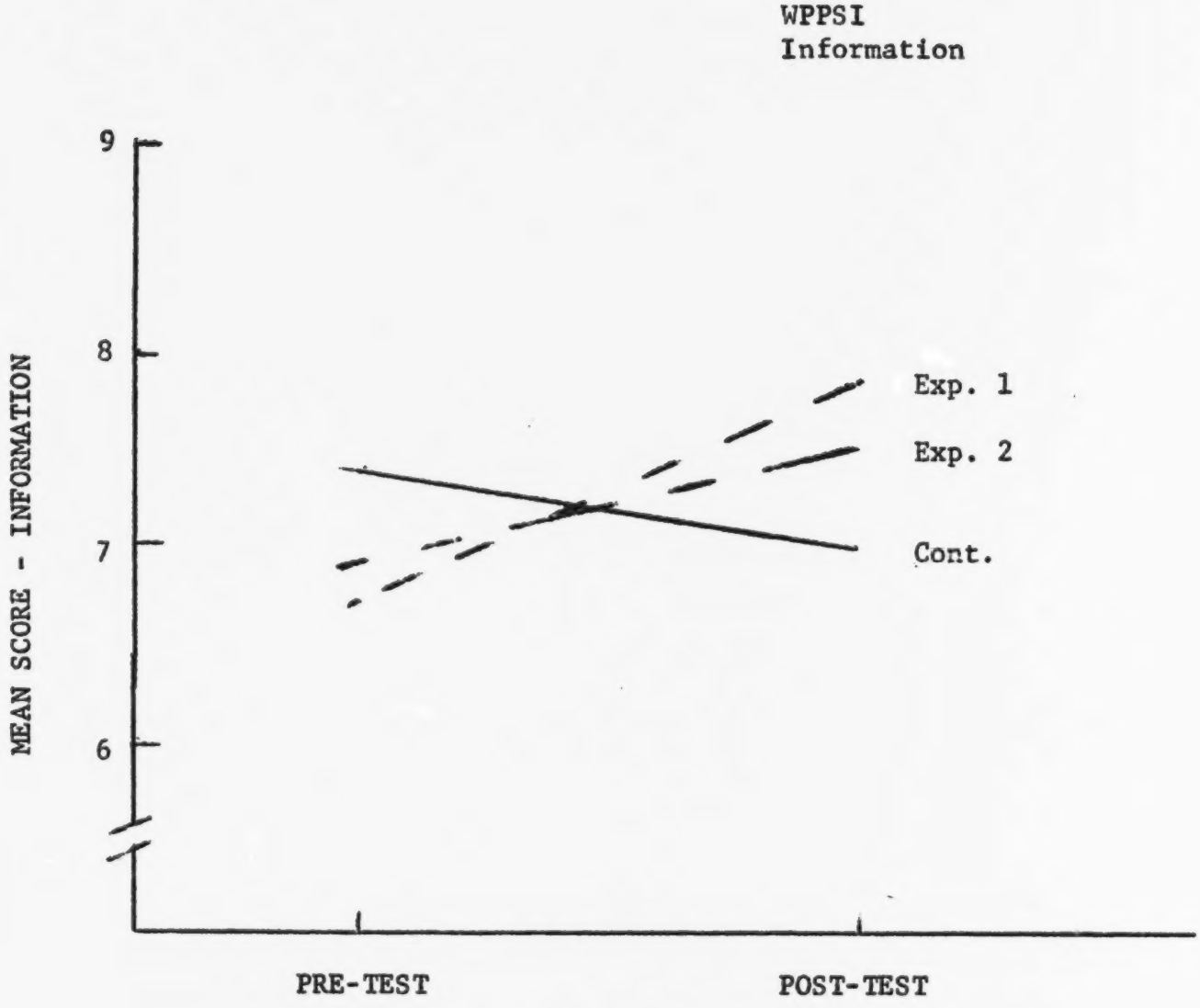
WPPSI
Information
9
8
7
6
MEAN SCORE - INFORMATION
Exp. 1
Exp. 2
Cont.
PRE-TEST
POST-TEST

Figure 2

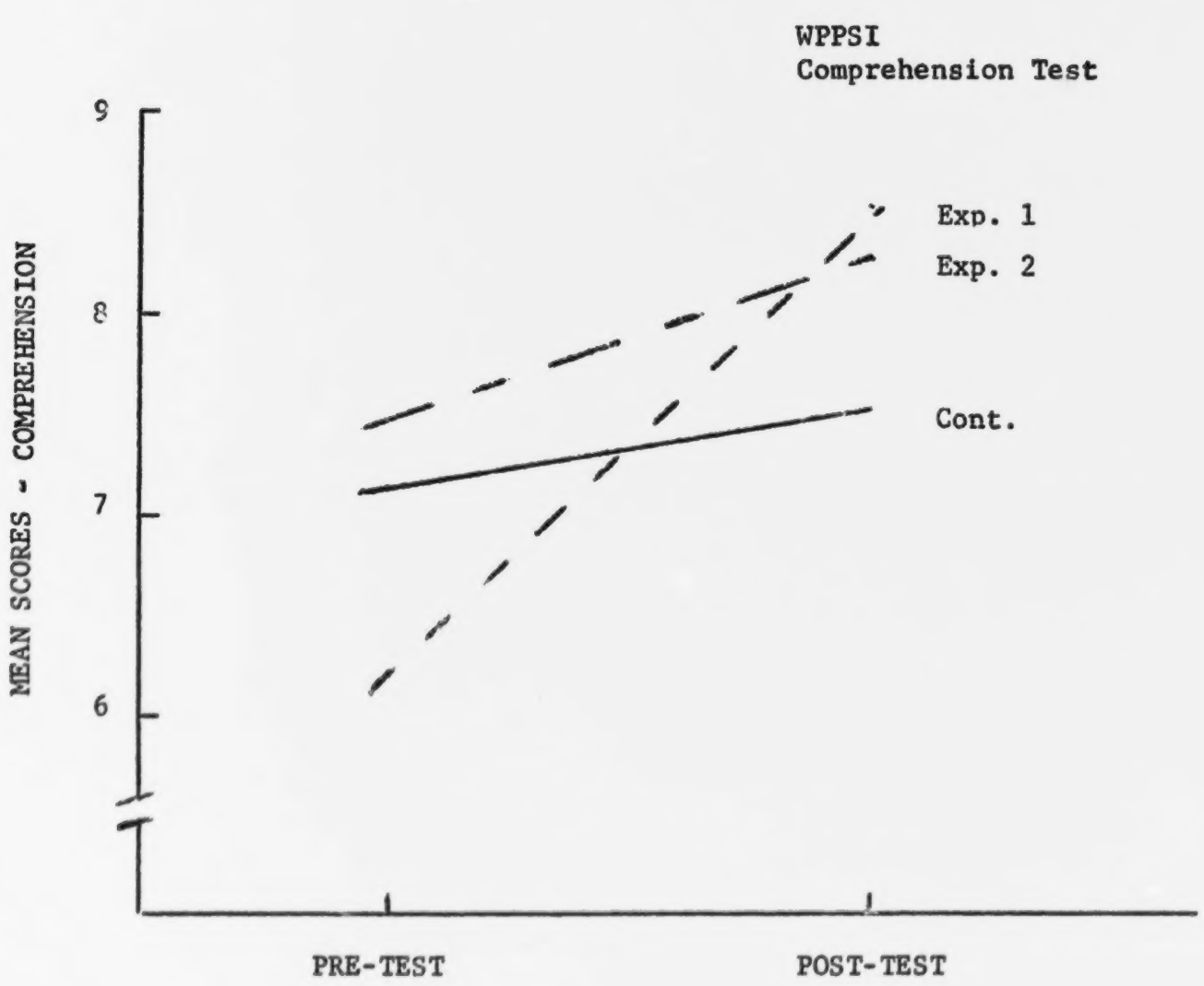
WPPSI
Comprehension Test
MEAN SCORES - COMPREHENSION
9
8
7
6
Exp. 1
Exp. 2
Cont.
PRE-TEST
POST-TEST

Figure 3

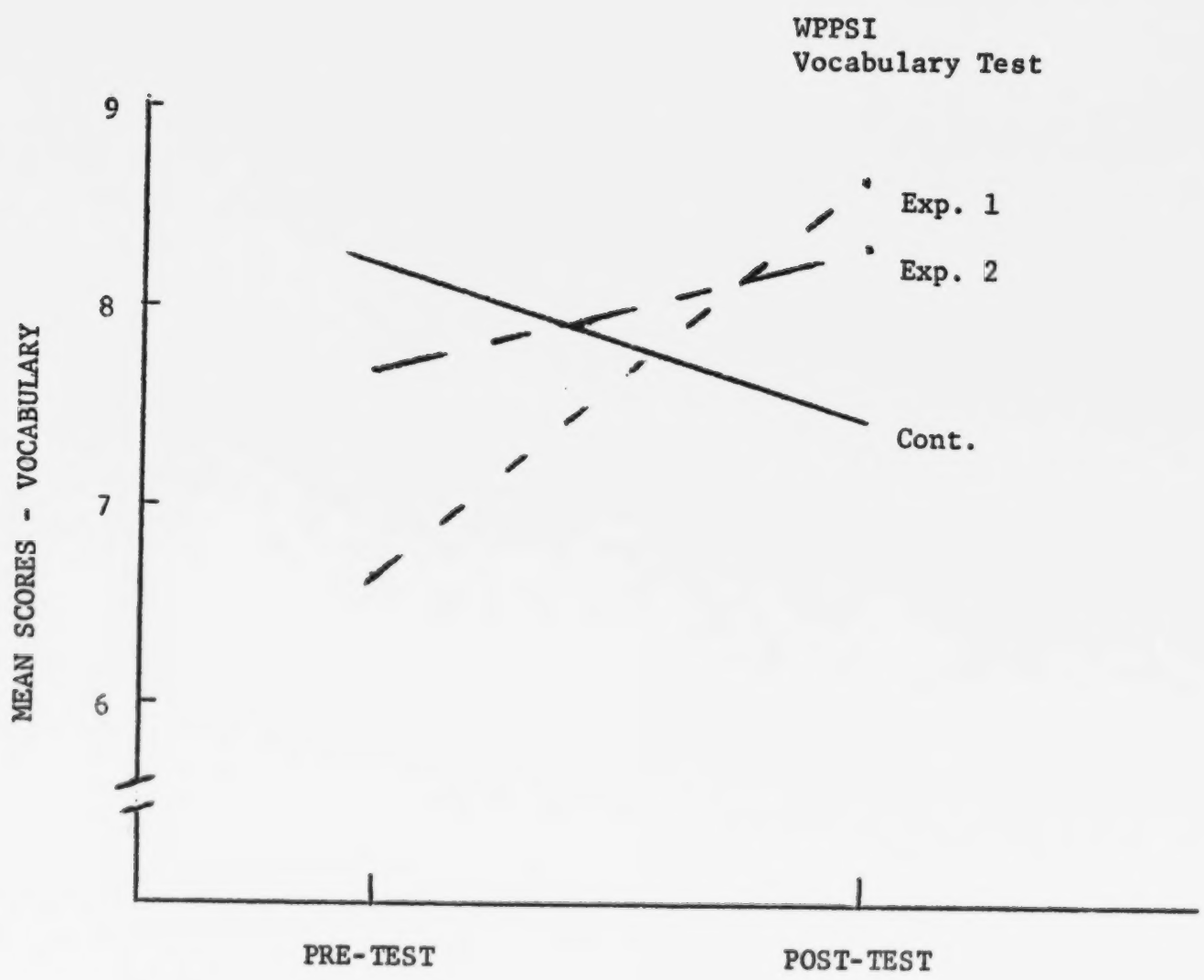
WPPSI
Vocabulary Test
MEAN SCORES - VOCABULARY
9
8
7
6
Exp. 1
Exp. 2
Cont.
PRE-TEST
POST-TEST

Figure 4

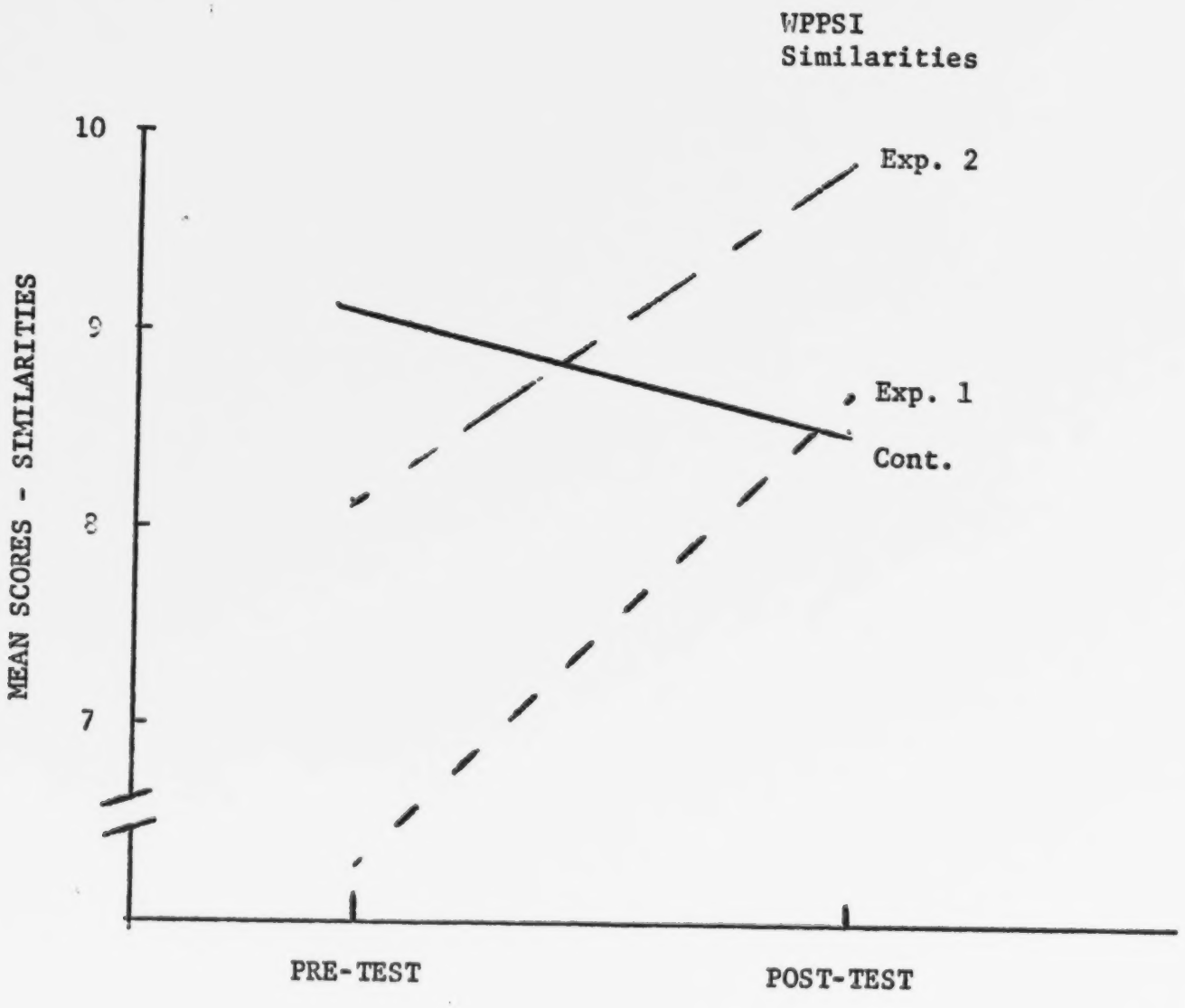
WPPSI
Similarities
10
9
8
7
MEAN SCORES - SIMILARITIES
Exp. 2
Exp. 1
Cont.
PRE-TEST
POST-TEST

Figure 5

CATB
Incidental Learning

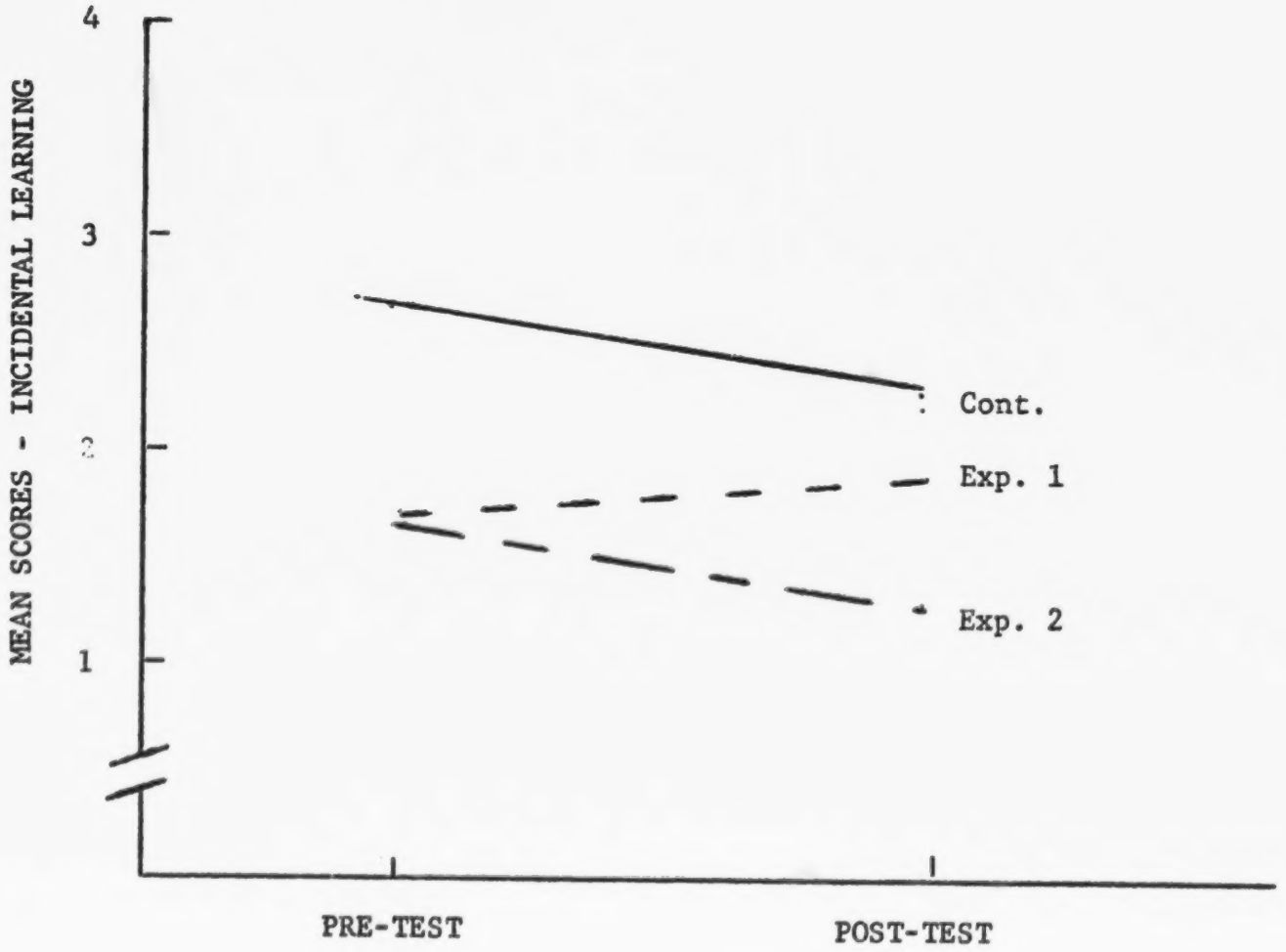

Figure 6

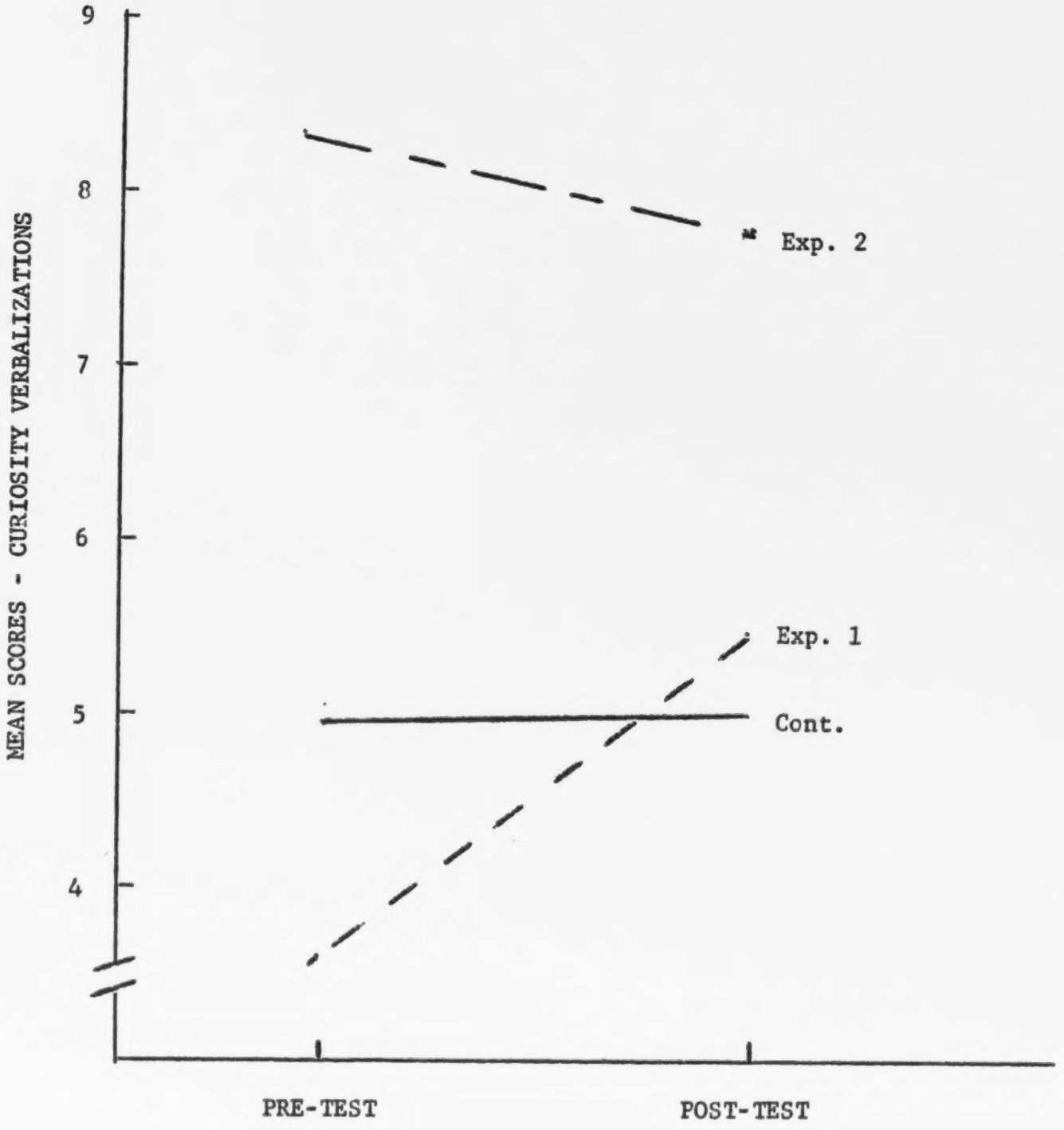
CATB
Curiosity Verbalizations
MEAN SCORES - CURIOSITY VERBALIZATIONS
9
8
7
6
5
4
Exp. 2
Exp. 1
Cont.
PRE-TEST
POST-TEST

Figure 7

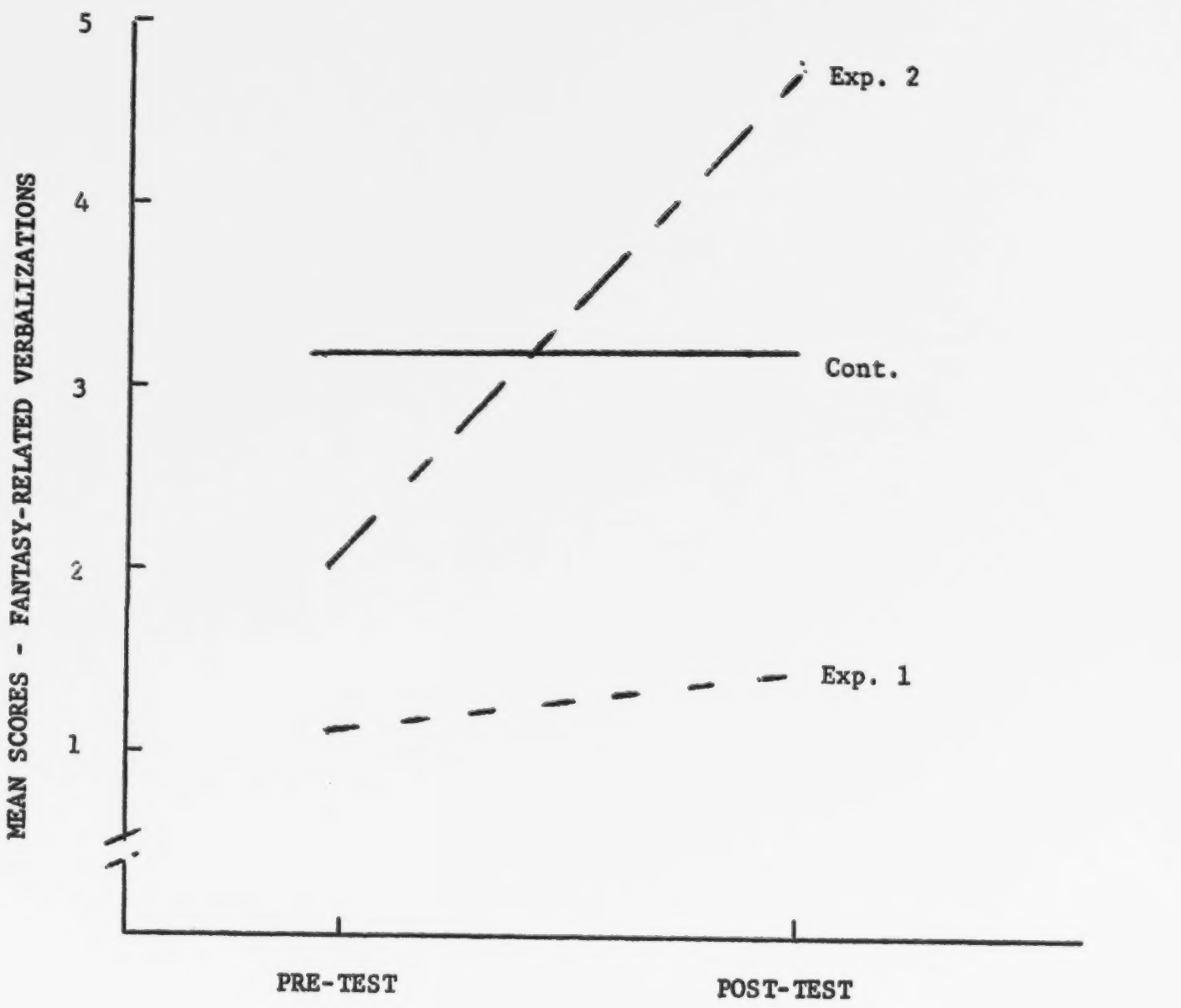
CATB
Fantasy-Related Verbalization
MEAN SCORES - FANTASY-RELATED VERBALIZATIONS
5
4
3
2
1
Exp. 2
Cont.
Exp. 1
PRE-TEST
POST-TEST

Figure 8

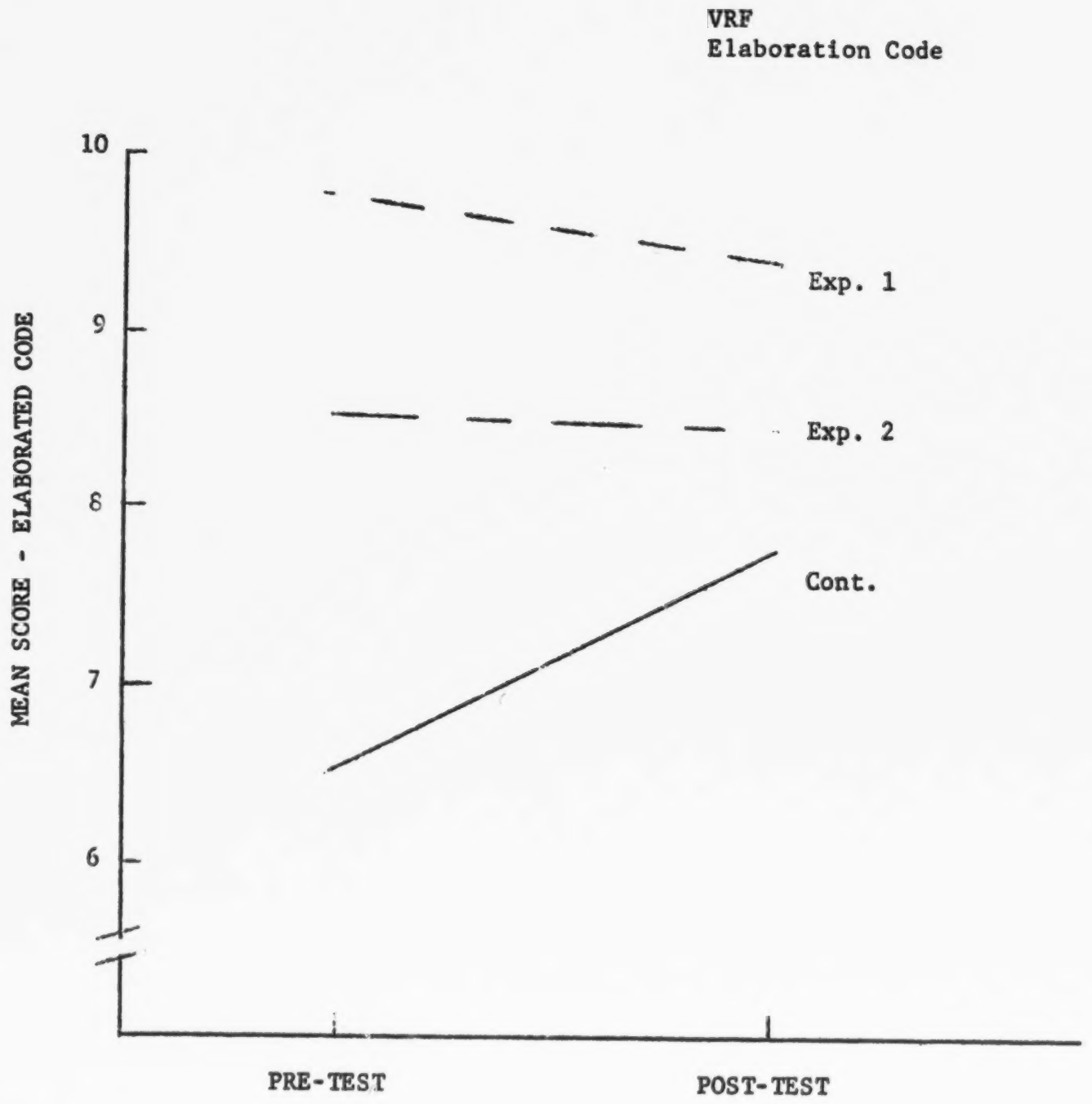

Figure 9

NOTE: A high score manifests a low rating on the particular verbal classification.

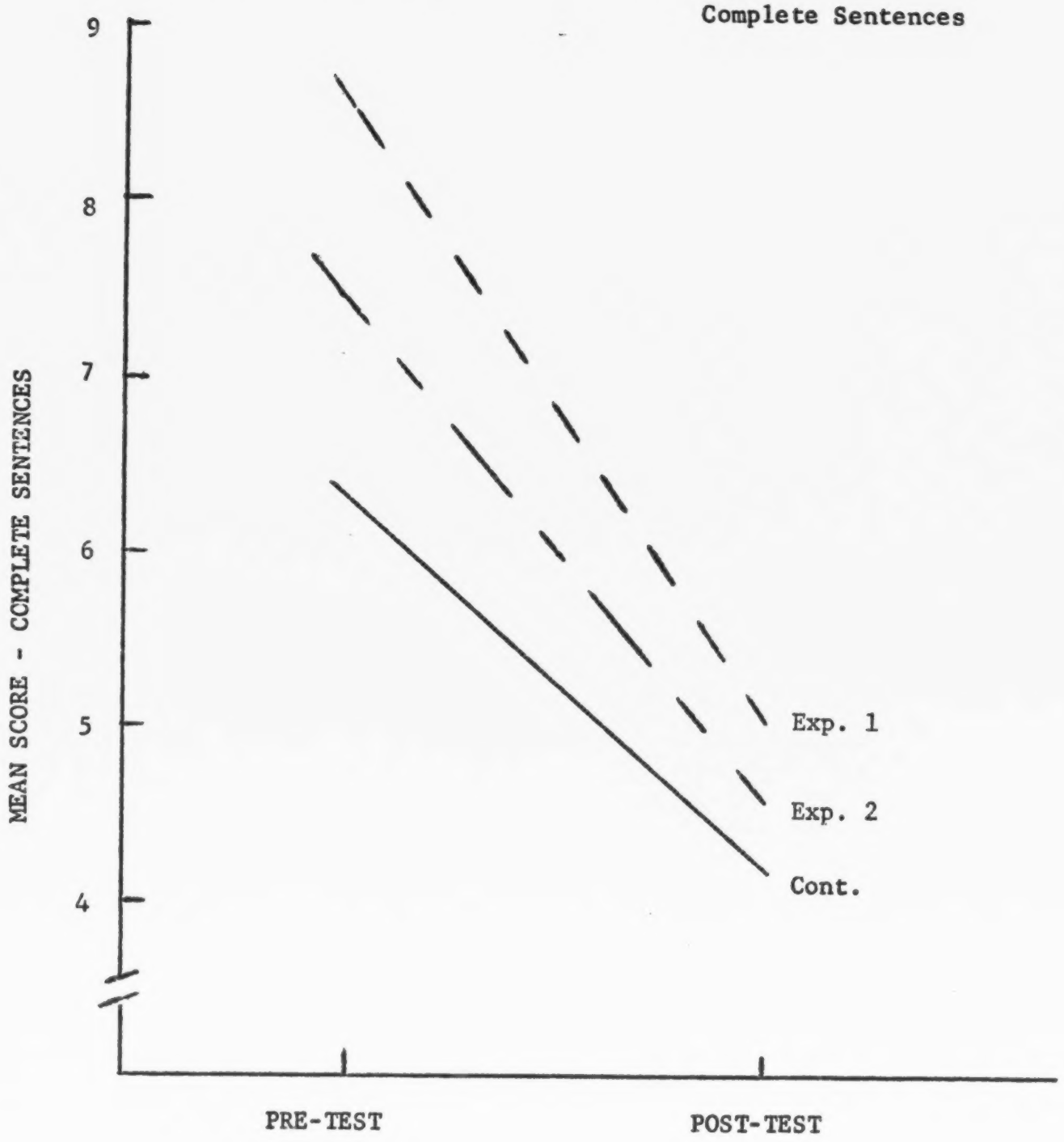

Figure 10

NOTE: A high score manifests a low rating on the particular verbal classification

VRF
Variety of Verbs

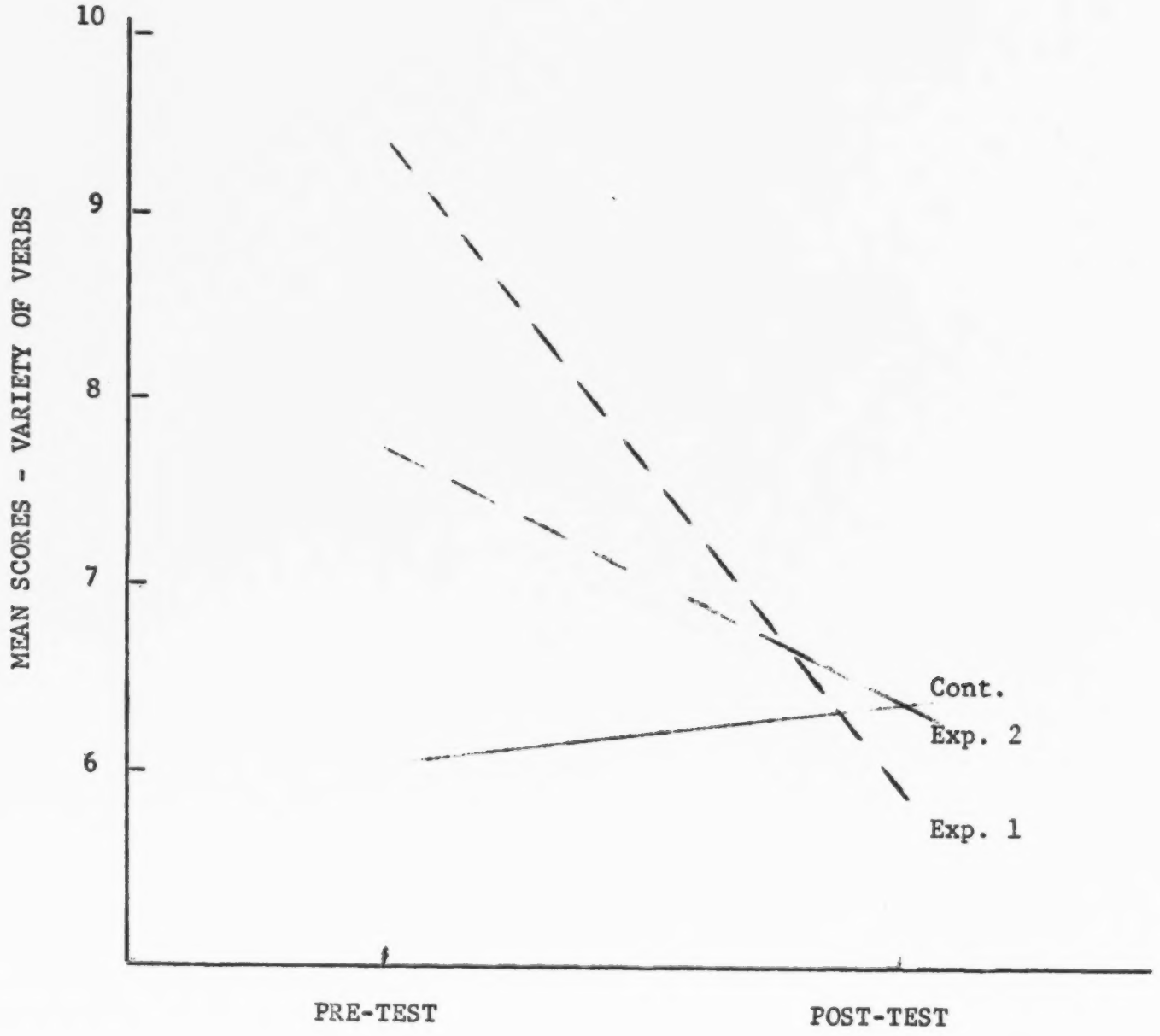

Figure 11

NOTE: A high score manifests a low rating on the particular verbal classification.

VRF
Descriptive Adjectives

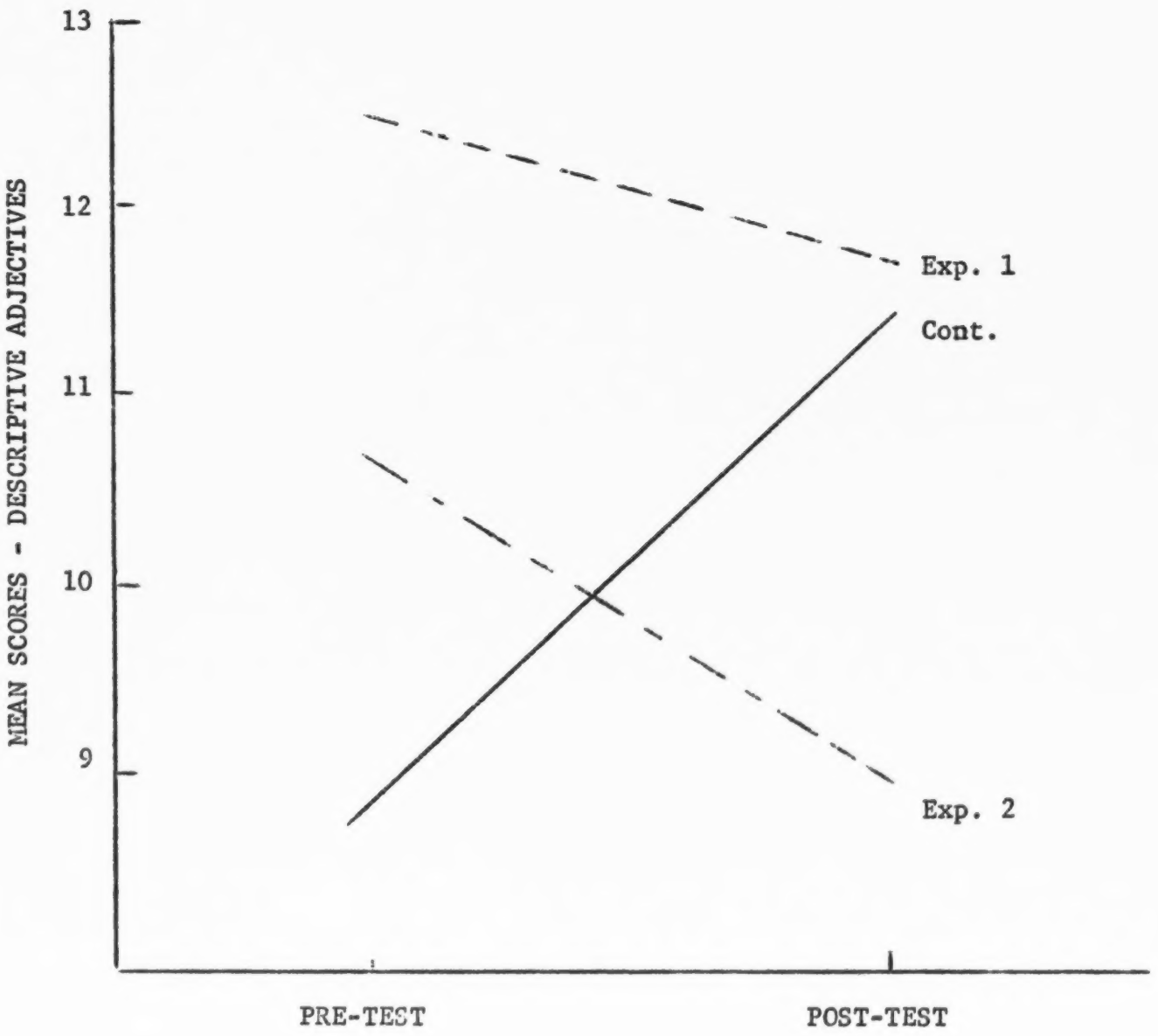

Figure 12

NOTE: A high score manifests a low rating on the particular verbal classification.

the disadvantaged child's attempts to cope with school, it would appear that any gain in verbal output would be an encouragement.

Videotape ratings. -- The ratings of children's verbalizations made by the videotape observers (Table 5) generally show that at the time of pre-data gathering the experimental groups were slightly below the control group on all four dimensions. (Note: A high score manifests a low rating on the particular verbal classification.) The post-data show no differences among the means; inspection of the means themselves reveals that the two experimental groups gained slightly in elaborateness of language, use of complete sentences, and use of verbs and adjectives, while the control group stayed almost the same or lost slightly.

In summary, while the more traditional measures of verbal ability (i.e. the WPPSI subtests) do not confirm the hypothesis that the experimental group would demonstrate greater gains in verbal skills than would the control group, the results from the experimental videotape instrument do confirm the differences in the direction hypothesized. The videotape rating scale is based on observations in the classroom setting; in these activities the experimental groups increased in their use of language as compared with the control group.

Identification of Outliers

In examination of the individual test scores it was felt that some of the observations were of such an extreme value that they might be eliminated from the data as statistical outliers. (Dixon & Massey, pg. 275, 1957). With this statistical method we were able to identify statistical outliers

in the data of following measures: WPPSI-Full Scale, WPPSI-Verbal IQ, CATB-ECMFFT, CATB-Social Competence and CATB-Curiosity Box Verbal. Elimination of the extreme values from their respective samples had a significant effect on the WPPSI Verbal IQ measure. The results of a new one-way analysis of variance calculated on this measure did manifest a significant difference ($F = 9.38$, $P \leq .01$). (see page 39A)

Social Interaction

The results of the social interaction analysis and brief discussions of these results, are presented in this section. The data from the Kansas Social Interaction Observation Procedure (SIOP), the M.S.U. Videotape Rating Form (V.R.F.) and the Parten-Newell Teacher Ratings of Play Behavior provided the material for the analysis.

The SIOP -- While the Kansas Social Interaction Observation Procedure was designed to yield data on 106 variables, the investigators of the present study were interested in only 29 of these variables (see pages 11-13 for further description of selected variables). Table 6 reports the means, standard deviations and significance levels (P) for the SIOP one-way analysis of variance. Upon examination of the significance levels, it appears that a few trends are substantial enough to warrant discussions and interpretation.

In the number of interactions involving both verbal and nonverbal interactions (variable 6) initiated by the subject to a peer, the three groups did not differ on pre-testing. At post-testing however, the experimental groups demonstrated a slightly greater number of

Original Mean Gain Scores and
Revised Mean Gain Scores After Elimination of Outliers

		Exp. 1	Exp. 2	Cont.	F
WPPSI - Full Scale					
	Original	10.63	.714	5.909	2.66
	Revised	---	3.83	---	.141
Verbal					
	Original	8.50	.285	3.81	.234
	Revised	10.71	4.17	---	9.38*
CATB- ECMFFT					
	Original	.606	1.40	1.70	.589
	Revised	1.75	---	---	.176
Intentional Learning					
	Original	.857	1.33	1.82	.42
	Revised	1.66	---	---	.136
Task Competence					
	Original	1.375	1.5	.818	.051
	Revised	0.000	---	---	.483
Social Competence					
	Original	-.25	2.5	1.36	.853
	Revised	---	.6	---	.490

* significant at $P \leq .01$

TABLE 6

Pre and Post Experimental--Control Comparisons for
29 Basic Social Interaction Variables of the
Kansas Social Interaction Observation Procedure

	Variable		Pre			Post		
			Exp. 1	Exp. 2	Cont.	Exp. 1	Exp. 2	Cont.
1.	Σ Verbal Interactions S and A	$\bar{X}$	7.00	5.43	3.80	9.00	16.60	7.00
		s	4.98	4.61	2.04	9.30	14.84	5.77
		P	.280			.227		
2.	Σ Verbal Interactions S and P	$\bar{X}$	3.67	6.43	10.42	6.43	7.40	11.91
		s	2.66	5.71	10.24	5.47	6.14	9.99
		P	.231			.342		
3.	Σ Nonverbal Interactions S and A	$\bar{X}$	3.60	3.33	1.80	3.50	4.67	3.00
		s	4.72	3.39	1.79	2.12	5.39	1.87
		P	.684			.791		
4.	Σ Nonverbal Interactions S and P	$\bar{X}$	8.60	5.50	3.17	5.40	3.50	2.90
		s	10.95	4.97	3.49	3.65	1.73	2.64
		P	.448			.289		
5.	Σ Verbal-Nonverbal Interactions S and A	$\bar{X}$	7.29	9.20	4.30	14.00	7.50	4.83
		s	5.44	3.35	3.77	16.77	4.18	3.90
		P	.117			.140		
6.	Σ Verbal-Nonverbal Interactions S and P	$\bar{X}$	7.43	7.13	4.92	11.67	3.20	5.17
		s	4.08	4.39	4.68	11.57	1.79	4.88
		P	.393			.107		
7.	Total Verbal Interactions	$\bar{X}$	9.29	11.86	13.58	13.00	20.00	16.17
		s	5.09	5.70	9.29	9.52	17.23	10.74
		P	.496			.597		
8.	Total Nonverbal Interactions	$\bar{X}$	10.29	6.63	3.11	7.00	6.71	4.40
		s	9.09	4.69	3.14	4.83	6.26	3.20
		P	.075			.464		
9.	Total Non-Verbal-Verbal Interactions	$\bar{X}$	14.13	12.88	8.23	23.57	13.50	10.00
		s	5.38	5.25	4.88	12.03	8.94	5.89
		P	.033			.012		
10.	Σ S and A Interactions	$\bar{X}$	13.88	13.00	8.18	18.00	21.00	11.33
		s	8.68	9.56	6.05	20.95	14.66	8.26
		P	.258			.324		

	Variable		Pre Exp. 1	Pre Exp. 2	Pre Cont.	Post Exp. 1	Post Exp. 2	Post Cont.
11.	Σ S and P Interactions	$\bar{X}$	16.71	16.88	16.00	20.29	11.17	18.50
		s	14.02	13.25	15.75	18.07	6.55	14.87
		P	.989			.498		
12.	Total Verbal Initiations by S	$\bar{X}$	9.29	13.29	8.15	7.50	11.57	9.92
		s	6.68	4.96	5.46	6.09	10.45	4.78
		P	.172			.589		
13.	Total Nonverbal Initiations by S	$\bar{X}$	5.00	4.38	2.77	2.71	2.83	2.73
		s	2.73	2.56	1.79	1.60	1.33	1.42
		P	.088			.987		
14.	Total Verbal Responses by S	$\bar{X}$	3.71	3.57	2.92	2.20	3.67	3.40
		s	1.60	2.88	1.55	1.64	1.75	1.65
		P	.640			.326		
15.	Total Nonverbal Responses by S	$\bar{X}$	4.75	4.50	2,89	1.75	3.43	2.60
		s	2.43	1.69	1.69	.96	2.37	1.26
		P	.124			.294		
16.	S to A Initiation Responded to	$\bar{X}$	2.29	2.29	2.57	2.25	3.00	3.10
		s	2.21	1.70	1.51	1.26	1.63	1.79
		P	.945			.688		
17.	S to P Initiations Responded to	$\bar{X}$	3.17	3.13	2.73	3.40	3.17	2.73
		s	1.83	2.23	1.49	1.14	2.64	1.49
		P	.854			.764		
18.	A to S Initiations Responded to	$\bar{X}$	2.50	3.71	2.50	1.75	3.43	1.50
		s	1.77	1.50	1.41	.96	2.57	.93
		P	.258			.112		
19.	P to S Initiations Responded to	$\bar{X}$	4.00	3.63	2.64	3.00	2.50	4.09
		s	2.28	1.92	2.01	2.28	1.52	2.21
		P	.375			.300		
20.	Total Initiations Responded to	$\bar{X}$	11.88	13.50	8.62	8.00	11.86	10.50
		s	4.79	4.87	3.50	2.89	7.17	4.76
		P	.043			.375		
21.	S to A Initiations not responded to	$\bar{X}$	2.00	1.50	1.33	5.00	2.20	1.29
		s	.00	.71	.58	.00	.84	.49
		P	.463			.001		
22.	S to P Initiations not responded to	$\bar{X}$	3.17	3.86	3.11	2.99	2.00	2.58
		s	1.83	2.97	3.30	1.00	.89	1.56
		P	.860			.580		

	Variable		Pre			Post		
			Exp. 1	Exp. 2	Cont.	Exp. 1	Exp. 2	Cont.
23.	A to S Initiations not responded to	$\bar{X}$	1.88	3.00	1.63	2.00	4.20	1.40
		s	.99	1.67	1.06	1.73	4.55	.89
		P	.124			.357		
24.	P to S Initiations not responded to	$\bar{X}$	1.50	2.71	2.38	1.75	2.75	1.36
		s	.58	1.11	2.77	.96	.96	.67
		P	.623			.028		
25.	Total Initiations not responded	$\bar{X}$	9.38	11.50	7.62	5.71	11.57	7.75
		s	5.83	4.57	4.31	6.58	4.83	4.41
		P	.219			.118		
26.	Total S to A Interactions	$\bar{X}$	2.86	3.50	2.75	3.50	3.83	3.64
		s	2.34	2.38	1.83	3.70	2.56	2.29
		P	.842			.980		
27.	Total S to P Interactions	$\bar{X}$	5.43	6.50	5.27	3.86	5.17	5.08
		s	3.44	4.38	4.00	1.35	3.06	1.93
		P	.794			.426		
28.	Total A to S Interactions	$\bar{X}$	4.38	6.29	3.00	2.60	6.43	1.90
		s	2.62	2.93	2.24	2.61	5.06	1.60
		P	.045			.031		
29.	Total P to S Interactions	$\bar{X}$	4.29	6.00	4.00	3.43	4.33	5.00
		s	1.98	2.98	3.57	2.30	2.34	2.52
		P	.351			.408		

verbal-nonverbal interactions ($P \leq .107$).

In frequencies of nonverbal interactions, the experimental groups were higher than the control groups on pre-testing ($P = .075$). Since the disadvantaged children in the experimental groups were exposed to advantaged children who presumably have more highly developed language skills, the frequency of nonverbal communication in the experimental group would be expected to drop. It can be observed that the mean frequency of nonverbal communication (variable 8) does decrease for the experimental group but remains the same for the control group; the experimental and control groups no longer differ significantly ($P \leq .464$).

Looking at the means and mean change from pre to post, it is observed that both experimental groups drop while the control group remains the same. From the data available it appears that the nonverbal interaction decreased for the experimental groups but not for the control groups. The hypothesis of positive verbal effects upon the experimental group is, therefore, supported.

The V.R.F. -- One-way analysis of variance was used to test a large proportion of the videotape data. Analysis for this section was completed on pre, post and gain scores for frequency of four different types of interaction (subject-to-peer, peer-to-subject, peer-to-adult, and adult-to-subject). The clarity, the proportion of requests as opposed to directives, and the degree of compliance for each of the four interactions were analyzed. (See Appendix for description of variables). In addition, analyses of variance were calculated for the twelve rating scales filled out at the conclusion of each five minute videotape segment.

Because of the limited amount of data available on some variables, a few analyses consisted of frequency or percentage comparisons of the groups. The variables analyzed in this way were (1) complexity of each of the four interaction types, (2) amount and type of aggression, (3) amount and type of dependency on the teacher and (4) amount and type of sympathetic behavior.

Tables 7-10 report the means, standard deviations and probability levels for the frequencies of the four basic types of interaction and the clarity, proportion of requests as opposed to directives, and the proportion of immediate compliance as opposed to no compliance for each of the four interaction types for the experimental and control groups.

Upon the completion of the videotape rating, it was observed that the number of complex (compound) initiations observed was too limited for a one-way analysis of variance test to yield any meaningful information (there were only 23 occurances of complex behavior over twenty-one hours of tape). Therefore, the analysis of complex initiation behavior was limited to frequency comparisons. The investigators hypothesized that exposure to advantaged children would increase the skill of the disadvantaged children to understand complex sentences. Therefore, the frequency of complex statements to the child in the experimental groups should increase more from pre to post than the increase in the control group.

TABLE 7

Experimental-Control Comparisons of Subject to Peer Interactions from the V.R.F.: Number, Requests, Clarity, and Compliance

		PRE			POST			GAIN		
		Exp.1	Exp.2	Cont.	Exp.1	Exp.2	Cont.	Exp.1	Exp.2	Cont.
Frequency of Interactions	$\bar{X}$	3.25	4.43	5.67	6.00	4.00	6.10	2.00	-1.50	2.10
	s	1.75	2.37	4.70	5.18	2.92	2.38	5.55	2.95	4.25
	P	.343			.525			.257		
Proportion of Requests	$\bar{X}$	.35	.45	.33	.46	.22	.32	.07	- .20	- .07
	s	.21	.35	.17	.30	.16	.25	.52	.08	.31
	P	.784			.636			.565		
Clarity of Initiation	$\bar{X}$	.89	.88	.90	.61	.58	.53	-.12	- .49	- .28
	s	.19	.21	.14	.23	.09	.12	.44	.12	.57
	P	.975			.664			.421		
Immediate Compliance	$\bar{X}$	.38	.75	.18	.49	.45	.62	.34	- .19	.44
	s	.18	.28	.06	.31	.38	.20	.20	.61	.25
	P	.012			.531			.046		
No Compliance	$\bar{X}$	.75	.30	.64	.51	.38	.44	.01	.09	- .25
	s	.29	.15	.18	.22	.27	.27	.57	.41	.32
	P	.023			.799			.421		

TABLE 8

Experimental-Control Comparisons of Peer to Subject Interaction from the V.R.F.: Number, Requests, Clarity, and Compliance

		PRE			POST			GAIN		
		Exp.1	Exp.2	Cont.	Exp.1	Exp.2	Cont.	Exp.1	Exp.2	Cont.
Frequency of Interaction	$\bar{X}$	2.86	3.00	4.00	5.50	3.75	4.10	.60	-1.67	.70
	s	1.77	1.85	3.37	4.20	1.26	3.18	4.04	4.51	3.13
	P	.579			.696			.601		
Proportion of Requests	$\bar{X}$	.67	.26	.51	.61	.32	.46	.44	.25	-.19
	s	.29	.21	.26	.40	.16	.27	.48	.00	.55
	P	.139			.491			.285		
Clarity of Initiation	$\bar{X}$	.82	.90	.82	.78	.53	.69	- .23	- .35	-.24
	s	.19	.19	.20	.20	.06	.31	.38	.21	.44
	P	.670			.535			.932		
Immediate Compliance	$\bar{X}$	.48	.71	.55	.38	.44	.67	- .07	.34	.08
	s	.30	.20	.31	.06	.38	.32	.17	.48	.49
	P	.464			.318			.433		
No Compliance	$\bar{X}$	.61	.53	.48	.49	.58	.62	.28	- .20	.32
	s	.35	.37	.31	.30	.14	.26	.18	.59	.50
	P	.862			.755			.215		

TABLE 9

Experimental-Control Comparisons of Peer to Adult Interactions from the V.R.F.: Number, Requests, Clarity, and Compliance

		PRE			POST			GAIN		
		Exp.1	Exp.2	Cont.	Exp.1	Exp.2	Cont.	Exp.1	Exp.2	Cont.
Frequency of Interaction	$\bar{X}$	2.00	2.50	2.33	2.67	3.00	2.56	- .43	1.50	.60
	s	1.51	1.29	1.94	1.15	2.00	2.19	.98	1.38	4.10
	P	.868			.925			.358		
Proportion of Requests	$\bar{X}$	.67	.36	.64	.75	.58	.77	.59	-.04	.00
	s	.47	.13	.42	.35	.38	.33	.12	.30	.67
	P	.561			.765			.469		
Clarity of Initiation	$\bar{X}$	.82	.73	.86	.50	.36	.64	- .59	-.55	- .91
	s	.21	.36	.21	.00	.13	.23	.12	.29	.19
	P	.713			.188			.152		
Immediate Compliance	$\bar{X}$	.75	.75	.65	.63	.62	.81	.63	-.08	.60
	s	.43	.29	.34	.53	.13	.27	.53	.46	.49
	P	.891			.594			.279		
No Compliance	$\bar{X}$	.67		.55	.25	.60	.67	- .63	.20	- .35
	s	.24		.42	.00	.57	.47	.53	.00	.47
	P	.622			.818			.460		

TABLE 10

Experimental-Control Comparisons of Adult to Subject Interactions from the V.R.F.: Number, Requests, Clarity, and Compliance

		PRE			POST			GAIN		
		Exp. 1	Exp.2	Cont.	Exp.1	Exp.2	Cont.	Exp.1	Exp.2	Cont.
Frequency of Interaction	$\bar{X}$	5.50	5.25	3.60	13.17	8.67	5.18	6.71	5.00	2.00
	s	3.74	4.03	2.17	14.72	5.82	4.38	15.42	7.27	5.10
	P	.425			.203			.640		
Proportion of Requests	$\bar{X}$	.63	.60	.91	.60	.71	.68	.01	- .10	.22
	s	.29	.22	.16	.22	.23	.26	.39	.37	.55
	P	.069			.704			.433		
Clarity of Initiation	$\bar{X}$	.95	.84	.92	.64	.59	.52	- .37	- .23	- .47
	s	.17	.15	.16	.29	.27	.30	.24	.34	.47
	P	.342			.742			.545		
Immediate Compliance	$\bar{X}$	.54	.63	.67	.69	.72	.61	.14	.08	- .01
	s	.32	.20	.31	.13	.23	.31	.31	.39	.37
	P	.627			.675			.764		
No Compliance	$\bar{X}$	.28	.37	.43	.22	.30	.45	.05	- .05	.09
	s	.10	.23	.32	.18	.09	.29	.25	.38	.33
	P	.657			.248			.794		

Table 11 reports the frequency of complex initiations by adults to the disadvantaged children. More complex initiations were used by adults in the experimental classrooms than by the adults in the control classroom. At first glance the frequency trend, 10 for experimental and 2 for control, supports the plausibility of adults using more complex statements with children in the experimental groups, but it must be remembered that the data is very limited and conclusions in any direction are not warranted until a great deal more research has been completed on this variable.

As was mentioned in the paragraphs describing the V.R.F., aggressive, dependent and sympathetic behavior were coded when they were observed. The occurrence of these behaviors affords us with limited data; analysis was limited to the computation and comparison of the proportions of various aspects of these behaviors found in the experimental and control groups.

Aggression: It was hypothesized that the amount of aggression would decrease for the children in the experimental classes from pre to post testing more than in the control group Examination of the frequency of these occurrences seemed a fruitful avenue of investigation. Table 12 reports the frequencies of the subject to peer aggressive acts exhibited by disadvantaged children in the experimental and control groups during pre and post testing. Of the 18 aggressive acts exhibited by the disadvantaged children during pre-testing, thirteen were from the experimental groups, seventy-two percent of the total aggressive behavior. During post testing there was a decrease in the total number of aggressive acts exhibited by the experimental group; the number of aggressive acts

TABLE 11

Frequency Count of Complex Initiations
Made by an Adult to Subject

	Pre	Post
Experimental Group	2	10
Control Group	0	1

TABLE 12

Frequency Count of the Acts of Aggressive Behavior
Exhibited by Control and Experimental Groups

	Number of Aggressive Acts	
	Pre	Post
Experimental Group	13	2
Control Group	5	5

remained the same for the control group. The percentage of aggressive acts exhibited during post testing by the experimental groups dropped to 29 percent of the total aggressive behaviors.

The aggressive acts were categorized on two independent dimensions. One dimension involved body contact, the assumption being that the amount of body contact will decrease as socialization increases. As with the total frequencies of aggressive behavior, the amount of body contact drops substantially from pre to post for the experimental groups but remains the same for the control groups (see Table 13). The agressive behavior was also classified according to the "purpose" of aggression. One category was labeled instrumental aggression; the function of these kinds of behaviors included defense of self or toy, and attempting to get a toy or to a particular destination. The second category was called emotional aggression and included verbal or physical abuse and disobedience, aggression with intent to "hurt." All aggressive acts were placed in either the instrumental or emotional category. Table 14 reports the proportion of aggressive acts categorized as instrumental and control groups. It is apparent from the increase in proportion of instrumental behavior for <u>both</u> groups that the intervention treatment is not responsible for the change.

<u>Dependency on Adults</u>:

With the assumption that as the child gains in self confidence and security his dependency on adults decreases, it was hypothesized that the experimental group would tend to exhibit less dependent behavior, especially in their interactions with the adults. Initiations by the

TABLE 13

Comparisons of Frequency of Body Contact
Exhibited in Aggressive Behavior
by Control and Experimental Groups

	Pre	Post
Experimental Group	12	1
Control Group	4	4

TABLE 14

Proportions of Instrumental Aggressive Behavior
Exhibited by Control and Experimental Groups

	Number of Instrumental Aggressive Behaviors	
	Pre	Post
Experimental Group	.46	.50
Control Group	.20	.80

subject to adults were coded as "dependency on adults" if the child approached the adult for direction, advice, or if he appeared to be wanting the teacher's attention. There were no examples of dependency in the control group. The number of dependent behaviors dropped from six to one from pre to post for the experimental groups, confirming the hypothesis as reported in Table 15.

The Parten-Newell Teacher Ratings

The results of a one-way analysis of variance calculated for the six pre-test measures of the Parten-Newell rating scale are presented in Table 16. The computed analyses yielded two significant differences: the first experimental group displaying the greatest amount of "solitary play" behavior, and the second experimental group the least ($P \leq .004$). The other significant difference manifested by the analysis was on "cooperative play," with the group means being in favor of the second experimental school, the control school displaying the least amount of cooperative play on this measure.

The analysis of post-test scores manifested three significant differences between the groups; these were "solitary play" ($P \leq .116$), "parallel play" ($P \leq .127$) and "cooperative play" ($P \leq .006$). On the "solitary" and "parallel" play measures, the differences between the group means are in favor of the first experimental group, the mean differences on the "cooperative" play measure are in favor of the second experimental group; in all three measures the control group maintains the middle position.

TABLE 15

Comparisons of Experimental and
Control Groups' Dependency on Adults

	Number of Dependent Acts	
	Pre	Post
Experimental Group	6	1
Control Group	0	0

TABLE 16

Results for Experimental and Control
for Play Behavior Ratings

Measurement	Source of Data	Mean Scores Exp.1	Exp.2	Cont.	F	P
Unoccupied Behavior	Pre	.09	.14		.290	.753
	Post	.11	.21	.13	.580	.593
Solitary Play	Pre	.41	.08	.27	6.84	.004
	Post	.29	.13	.19	2.42	.116
Onlooker Behavior	Pre		.09	.09	.002	.962
	Post	.13		.26	1.54	.235
Parallel Play	Pre	.19	.18	.17	.252	.779
	Post	.30	.19	.22	2.27	.127
Associative Play	Pre	.38	.21	.31	1.44	.256
	Post	.29	.24	.32	.689	.513
Cooperative Play	Pre		.37	.26	3.45	.080
	Post	.15	.40	.23	6.99	.006

In considering the six measures of the observer's ratings: (1) unoccupied behavior (2) solitary play (3) onlooker behavior (4) parallel play (5) associative play and (6) cooperative play, one would expect that as the socialization of the child increased, the amount of time spent in higher order social play activities would increase accordingly, i.e. we would expect that the child would spend more time in such activities as parallel, associative or cooperative play, rather than, in such activities as onlooker, unoccupied, or solitary behavior. Two of the three significant differences which favor the experimental group involved the parallel and cooperative play measures. The results of this analysis would seem to indicate that the treatment does have a positive effect on the experimental subjects. As manifested by this rating scale at least one experimental group seems to be spending more time in higher order social play activities than the control group.

Affective Variables

Since the theoretical and empirical evidence linking the affective realm with the cognitive is so strong as to suggest that one cannot properly be considered without the other, in the Lansing study analysis it was felt that some attention should be focused upon affective variables as well as the three major variables examined in the study -- cognition, verbal skill, and socialization. The major affective variable examined in the control-experimental portion of the study was "self-concept," chosen because of the vital importance of self-concept in the achievement

and academic success. For disadvantaged children especially, self-concept is a critical factor.

The Brown IDS Self-Concept Test measures four separate constructs: self-perception, and perceptions of self by the mother, the teacher, and peers. Because the last three subjects are extremely exploratory and have not been satisfactorily proven, our analysis was restricted to the self-perception subtest. The score for each child was the proportion of positive responses he gave in the 14-item test (not all children answered all 14 items). Gains pre to post in proportion of positive responses were calculated for each child. A Kruskal-Wallace one-way analysis of variance on gains in proportion of positive responses (see Table 17) demonstrated that the control and experimental groups did differ on gains in self-concept.

Three Mann-Whitney U tests were performed among the three groups to determine which groups caused the analysis of variance result; the differences between the second experimental group and the control group proved to be the greatest. These analyses were interpreted as demonstrating that the experimental groups did gain substantially more than did the control groups in self-perception, or "self-concept."

TABLE 17

Mean Gain in Proportion of Positive Responses
on Brown IDS Self Concept Test

Exp. 1	Exp. 2	Cont.
-.01	+.18	-.08

H = 6.41, P ≤ .15
Mann-Whitney U between Experimental 2 and Control = 13,
P ≤ .01

Summary and Conclusions

The major hypothesis of the study, that disadvantaged children should benefit from exposure to and interaction with advantaged children as suggested by Coleman (1966) and others, has our support in the initial analyses of much of the data. Subtests of the CATB, particularly resistand to distraction ($P \leq .002$), supported the contention that disadvantaged children did indeed gain skills that would increase their potential educability more in those classes holding a higher percentage of advantaged peers. The evidence, however, is far from clear cut. Equivocal is undoubtedly the best term that can be used to describe the overall results with regard to this central issue. For although the results were continually in the direction hypothesized (figures 1-12), many of the dimensions showed differences between experimental and control groups whose probability of occurrence by change was greater than the .05 percent level generally maximally allowable for confident conclusive interpretation.

There are critical reasons for this, however, and the results must be viewed in their light. Only one control class was available in which critical variables could be closely matched to the experimental group; this due to the limited lead time of the project. Also, the overall sample size of the study was small initially, and attrition within the experimental classes (from sixteen to eleven in one class) reduced the number of subjects further to the point where one or two subjects could radically effect the resulting variance. Empirical support for this position was gained through a statistical analysis in which radical outlying scores were compensated for. This analysis did indeed produce further significant evidence of an increased positive change on the part

of the experimental group. Keeping these facts in mind, a somewhat more liberal confidence level for purposes of determining directions of differences between the experimental and control children is in order. On this basis, additional statements can be made with regard to the primary question under study, particularly as regards further research investigations.

The experimental children were more persistent in tasks and were better able to relate complex, fantasy related verbal material than were their peers in the control group. The direction of these differences from the Cincinnati Autonomy Test Battery would encourage further support of the hypothesis that children from more advantaged environments do serve as agents for positive change in preschool classes beyond that which could be expected from a similar preschool environment with a more homogeneous group of children from disadvantaged circumstances. This contention is further supported by the results of the verbal skills measures. Again, although conclusive evidence in support of the major hypothesis was not forthcoming, the experimental group, particularly at experimental school one, showed a higher gain in verbal skills over the year than did the control children. These results are particularly encouraging, if not conclusive, since it is early achievement in this crucial area that is shown to be so highly predictive of later school success.

In the conceptualization of the study, social variables were seen as highly related to this kind of treatment, and it was hypothesized that increased model potential in the experimental classes should provide for a lessening of aggressive and dependent behavior and increase in more

complex, socially efficient interactive behavior on the part of the experimental children. Again, the amount of data available after using closely defined, reliable observation procedures (i.e. that behavior that could be scored as "aggressive" or "dependent" was carefully defined and systematically measured using random time sampling procedures) was limited, and definitive analyses of the variance between the control and experimental groups were not conclusive. Frequency comparisons of the specific behavioral dimensions under study, however (Tables 11-14), indicate clearly that the number of aggressive and dependent behaviors decreased for the experimental group while no such evidence appeared for the control group. In addition, complex initiations or the use of more complex statements by adults to the children increased much more in the case of the experimental children than in the case of the controls. Dependency on adults was also measured. Initiations were coded as "dependency on adults" if the child approached the adult for direction, advice or if he appeared to be wanting the teacher's attention. Although not a large number of these initiations were noted during the limited sample of child time observed, there was a marked decrease in the number of such interactions by the children in the experimental group while the control children exhibited no such initiations pre or post. Analysis of the Parten-Newell Teacher Rating Scales indicated that one experimental group significantly increased in amount of time spent in higher order social play activities, while no such change occurred in the case of the control group children.

As previously noted, the affective or emotional realm of early child behavior is generally agreed upon as a most important area. The interaction of a child's feelings about himself, or self concept, as well as his feelings about significant adults in his life and his cognitive abilities is a key area to predicting later academic success. The Brown IDS Self Concept Test was used in the study to compare the change in self concept on the part of the two groups. This is especially crucial in light of what some professionals might feel is the "price" that is paid for the modeling benefit of grouping advantaged and disadvantaged children. This thinking would assume that although the disadvantaged children might benefit in cognitive areas from the ability to model after their more advantaged peers, they would pay a price in self concept in that they would be continually made aware of their secondary ability in given areas of preschool activity. We do not feel that this is true, and the results of the Brown IDS analysis support the fact that it is not. The experimental children in fact gained significantly more in self concept than their control peers. This would support the contention that the experimental children were not adversely affected in their self concept by the interaction with their advantaged peers, but in fact improved more than controls in this critical, affective area.

Sociometric analyses of the classes showed no significant difference between the two groups. These measures were taken primarily to determine if the disadvantaged children in the heterogeneously grouped experimental classes were excluded in any way by their more advantaged peers. This was shown not to be the case by these investigations.

In summary, the analyses support in many ways the conclusion that a more heterogeneous grouping of preschool children on the basis of social class does in fact increase their positive change along many cognitive, verbal and social variables seen as important in preparing three and four year old children to better utilize later educational experiences. The results, however, because of the limitations in the size of the samples under study, are not conclusive and a thorough replication is needed. Hopefully, a replication will involve enough classes so that not only will those samples of children under study be greatly increased, but also the assumption that differences seen are not in fact a function of teacher variation, can be more soundly supported than was the case in this research.

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APPENDIX

Wechsler Preschool and Primary Scale of Intelligence (WPPSI)
(not available for reproduction)

Cincinnati Autonomy Test Battery (CATB)

Head Start Video Tape Code Sheet (VRF)

Parten Newell Teacher Rating Form

Social Interaction Observation

Modified CATB Sept. '66
Proto. #_____

Record Booklet

Child's Name_____ Tester_____

School_____ Experimental Control (circle one)

Address_____ Phone_____Sex _____Race_____

	yr.	mo.	day
Date of Test	_____	_____	_____
Child's Birthdate	_____	_____	_____
Age	_____	_____	_____(add 1 mo. if 15 days or more)

Age in months_____

Child's Name_____ Proto. #_____

Task Initiation: (circle proper rating)

1. No initiation. Child sat with hands in lap and watched E. Child sat and looked about the room.

2. Minimal contact: No real involvement is shown - child touched figures but withdrew. Child knocked figure down and immediately withdrew.

3. Initiation but minimal involvement. Child moves figures about randomly but no organization. Child lays all figures down - no systematic play.

4. Initiation - high degree of involvement - organized activity. Child pairs all animals or stands them side by side. Child groups figures and puts them inside barricade. Child puts figures on top of one another.

Curiosity Box

Revised Dec/66

Activity								Verbalization			
								Box Related		Other	
Time	Manip. Explo.	Tact. Explor.	Visual Explor.	Other	Move.- Subject	Move.- Box	Time	Quest. &/or Comment	Fantasy	Quest &/or Comment	Fantasy
.50	me	te	ve	other	m-s	m-b	.50	q &/or c	fan	q &/or c	fan
1.00	me	te	ve	other	m-s	m-b	1.00	q &or c	fan	q &/or c	fan
1.50	me	te	ve	other	m-s	m-b	1.50	q &/or c	fan	q &/or c	fan
2.00 Prompt	me	te	ve	other	m-s	m-b	2.00 Prompt	q &/or c	fan	q &/or c	fan
2.50	me	te	ve	other	m-s	m-b	2.50	q &/or c	fan	q &/or c	fan
3.00 Term	me	te	ve	other	m-s	m-b	3.00 Term	q &/or c	fan	q &/or c	fan
3.50	me	te	ve	other	m-s	m-b	3.50	q &/or c	fan	q &/or c	fan
4.00	me	te	ve	other	m-s	m-b	4.00	q &/or c	fan	q &/or c	fan
4.50	me	te	ve	other	m-s	m-b	4.50	q &/or c	fan	q &/or c	fan
5.00	me	te	ve	other	m-s	m-b	5.00	q &/or c	fan	q &/or c	fan

Child's Name:_____ Sept. '66

Impulse Control:

Fast line (training)

Total length_____

Total time

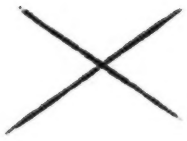
Aver. In./.01 min._____

Slow line # 1

Time:_____

Length:_____

In./.01 min._____



Slow Line # 2

Time:_____

Length:_____

In./.01 min._____

Slow Line # 3

Time:_____

Length:_____

In./.01 min._____

Child's Name_____ September 1966

Incidental Learning

Incidental Recall	Labeling	Post-Familarization Recall
	T1. Table	
	T2. House	
	T3. Apple	
	1. Dog	
	2. Girl	
	3. Wagon	
	4. Airplane	
	5. Telephone	
	6. Bed	
	7. Shoe	
	8. Car	
	9. Hat	
	10. Boat	
Total		Total

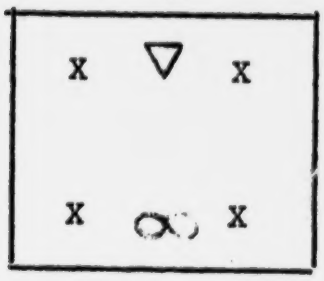
Irrelevant Responses:

Irrelevant Responses:

Child's Name_____ September 1966

Response Variability Score (number of different ways)_____

1



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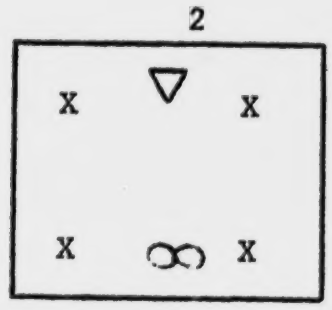
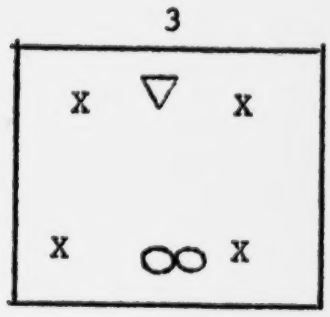


3



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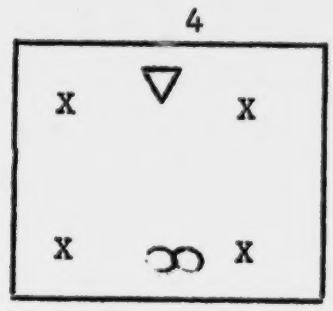

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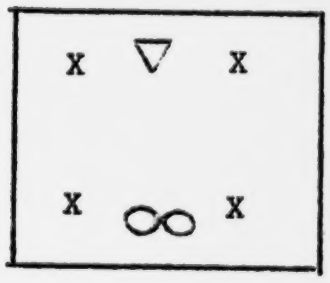

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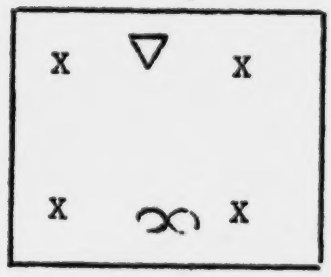

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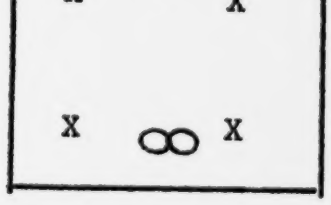

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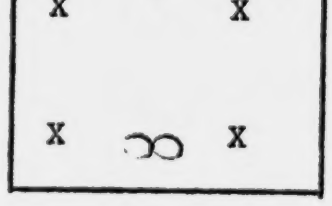

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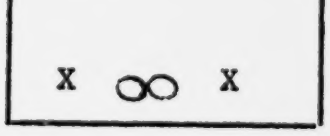

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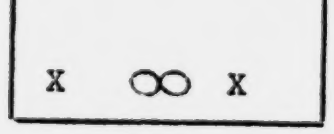
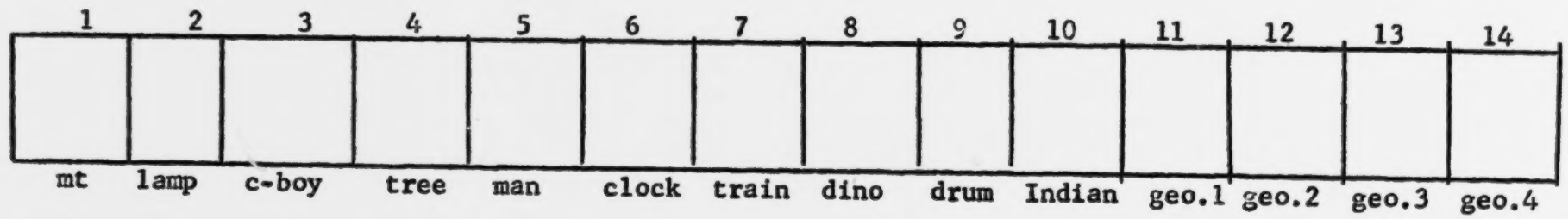


Child's Name_____ November, 1966

EC = EFT

Early Childhood - Embedded Figures Test

Cone



Cone Score:_____

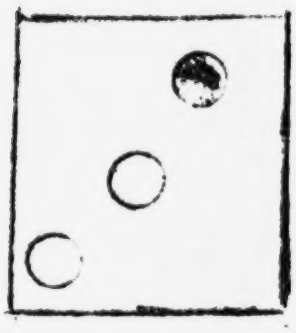
Puzzle Board: #2 manipulation board

Revised Dec/66

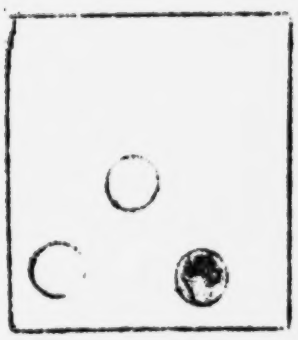
Activity					Verbalization				
					Board Related			Other	
Time	Manip. Explor.	Other	Move.- Subject	Move.- Boards	Time	Quest. &/or Comment	Fantasy	Quest. &/or Comment	Fantasy
.50	me	other	m-s	m-b	.50	q &/or c	fan	q &/or c	fan
1.00	me	other	m-s	m-b	1.00	q &/or c	fan	q &/or c	fan
1.50	me	other	m-s	m-b	1.50	q &/or c	fan	q &/or c	fan
2.00 Prompt	me	other	m-s	m-b	2.00 Prompt	q &/or c	fan	q &/or c	fan
2.50	me	other	m-s	m-b	2.50	q &/or c	fan	q &/or c	fan
3.00 Term	me	other	m-s	m-b	3.00 Term	q &/or c	fan	q &/or c	fan
3.50	me	other	m-s	m-b	3.50	q &/or c	fan	q &/or c	fan
4.00	me	other	m-s	m-b	4.00	q &/or c	fan	q &/or c	fan
4.50	me	other	m-s	m-b	4.50	q &/or c	fan	q &/or c	fan
5.00	me	other	m-s	m-b	5.00	q &/or c	fan	q &/or c	fan

Early Childhood -- Matching Familiar Figures Revised -- Summer '67

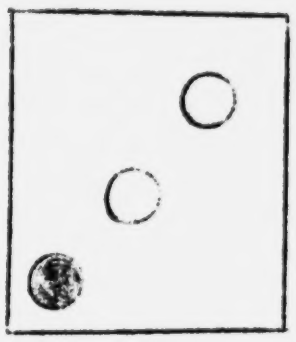
#1 Circle



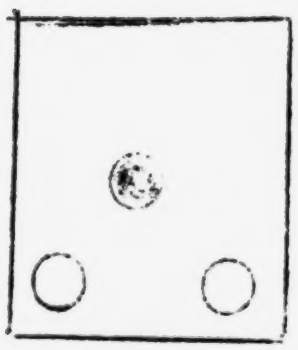
#2 Girl



#3 Cat

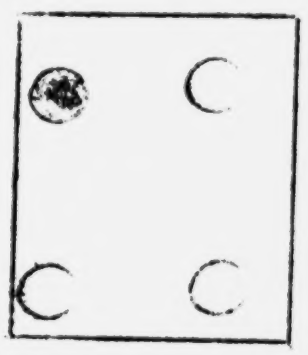


#4 Boy

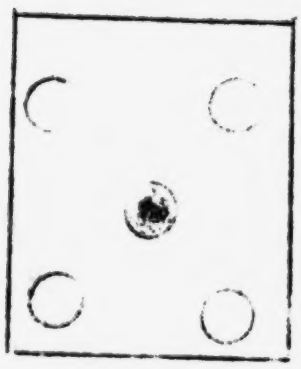


#5 Bunny

#6 Woman-Face

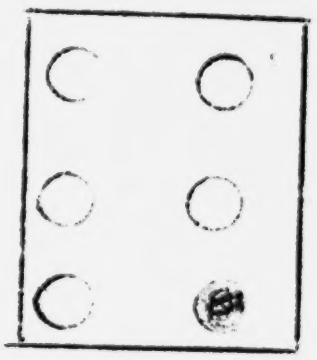


#7 Tree

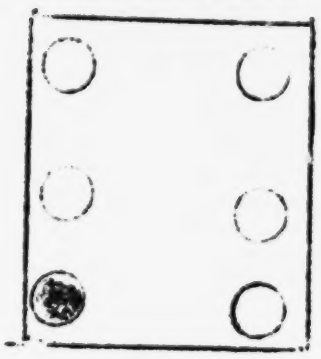


#8 Man - Face

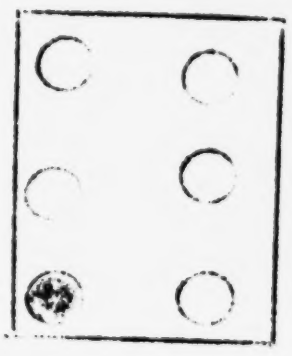
#9 Tractor



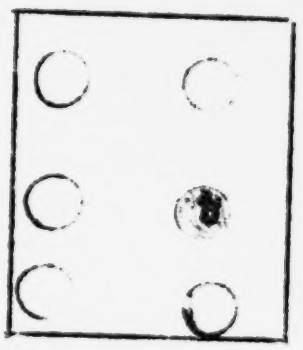
#10 Girl-Face



#11 Plane



#12 Boy-Face



Total Correct_____

Child's Name _____ Photo #_____

Activity						Puzzle or Block Related		Other	
Time	Puzzle-Goal Direct	Puzzle-non Goal Direct.	Other	Prompt	Blocks	Time	Ques. &/or Comments	Fantasy	Ques. &/or Comments	Fantasy
.33	pgd	pngd	other	P		.33	q &/or c	fan	q &/or c	fan
.66	pgd	pngd	other	P		.66	q &/or c	fan	q &/or c	fan
1.00	pgd	pngd	other	P		1.00	q &/or c	fan	q &/or c	fan
1.33	pgd	pngd	other	P		1.33	q &/or c	fan	q &/or c	fan
1.66	pgd	pngd	other	P		1.66	q &/or c	fan	q &/or c	fan
2.00	pgd	pngd	other	P		2.00	q &/or c	fan	q &/or c	fan
2.33	pgd	pngd	other		blks	2.33	q &/or c	fan	q &/or c	fan
2.66	pgd	pngd	other		blks	2.66	q &/or c	fan	q &/or c	fan
3.00	pgd	pngd	other		blks	3.00	q &/or c	fan	q &/or c	fan

Tester's Ratings

Child's Name _____ Tester's Name _____ School _____ Date _____

	5 Optimal	4 Good	3 Average	2 Fair	1 Poor	
Task Competence Rating						
Absorbed by task						Easily distracted
Persistent						Gives up easily, or can't give up
Eager to continue						Seeks to terminate
Challenged by hard tasks						Prefers only easy tasks
Social Competence Rating						
Socially confident						Shy, reserved, reticent
Comfortable in adult company						Ill-at-ease
Assured						Anxious about success
Needs minimum of commendation						Needs constant praise and encouragement
Kindergarten Prognosis						
Good conventional kindergarten prognosis						Poor conventional kindergarten prognosis

Head Start Videotape Code Sheet
Part I

1. Interchange: Interaction between the subject and an adult or peer.

   S = subject
   p = peer letter
   A_1, A_2, A_3, A_x = A = Adult

   Code:
   1 = S P
   2 = P S
   3 = S A
   4 = A S

2. Request (question) or directive (statement)

   Code:
   1 = request
   2 = directive

3. Clarity of request or directive

   Code:
   1 = clear, firm
   2 = unclear, weak, tentative, permissive

4. Complexity of request or directive

   Code:
   1 = simple - single action
   2 = compound - multiple action

5. Compliance

   Code:
   1 = immediate
   2 = slight delay, performed or responded to
   3 = more than one request or directive before performed or responded to
   4 = gets done eventually but little relation (time) to request or directive
   5 = not performed
   6 - response cannot be determined

6. Aggressive Behavior

Code:
0 = no aggressive behavior
1 = Physical - spontaneous, intent to hurt
2 = instrumental = hit to get
3 = defense of toy
4 = defense of self
5 = verbal, spontaneous, intent to hurt
6 = disobedience
7 = 01 + body contact
8 = 02 + body contact
9 = 03 + body contact
10 = 04 + body contact
11 = 05 + body contact
12 = 06 + body contact

7. Dependency (on adults)

Code:
0 = no dependent behavior
1 = emotional - approaches adult for other than direction, advice, information
2 = instrumental - seeks direction, advice, information
3 = 1 + body contact
4 = 2 + body contact

8. Sympathetic (to peer)

Code:
0 = no sympathetic behavior
1 = protects, defends or attempts to remove cause of distress
2 = questions -- shows concern about a peer
3 = assists in play -- explains, demonstrates
4 = 1 + body contact
5 = 2 + body contact
6 = 3 + body contact

Head Start Video Tape Code Sheet

Part 2

1. ELABORATED CODE _ _ _ _ _ RESTRICTED CODE

   1. S always uses elaborated code.
   2. S predominantly uses elaborated code.
   3. S uses elaborated and restrictive codes with equal frequency.
   4. S predominantly uses restricted code.
   5. S always uses restricted code.

2. ALWAYS USES COMPLETE SENTENCES _ _ _ _ _ NEVER USES COMPLETE SENTENCES

   1. S always uses complete sentences.
   2. S predominantly uses complete sentences.
   3. S uses complete and incomplete sentences with equal frequency.
   4. S uses predominantly incomplete sentences.
   5. S always uses incomplete sentences.

3. LARGE VARIETY OF VERBS _ _ _ _ _ NO VERB

   1. S uses many and a wide variety of verbs.
   2. S uses fewer and a wide variety of verbs.
   3. S uses three transitive or one intransitive verb.
   4. S uses one or two transitive verbs.
   5. S uses no verbs in sentences.

4. MANY DESCRIPTIVE ADJECTIVES _ _ _ _ _ NO DESCRIPTIVE ADJECTIVES

   1. S uses three or more descriptive adjectives.
   2. S uses two descriptive adjectives.
   3. S uses one descriptive adjective.
   4. S uses one descriptive adjective which is part of a compound word.
   5. S uses no descriptive adjectives.

5. LONG ATTENTION SPAN _ _ _ _ _ SHORT ATTENTION SPAN

   1. S continually focus' on activities in a distracting environment.
   2. S frequently focus' on activities in a distracting environment.
   3. S is able to focus on activities for half the interval.
   4. S is frequently distracted from activities.
   5. S is always distracted from activities.

6. DRAMATIC PLAY A GREAT DEAL — DRAMATIC PLAY RARELY

1. S spends most of observation interval in elaborated dramatic play.
2. S spends most of observation interval in dramatic play or at least half of the interval in elaborated dramatic play.
3. S spends some of observation interval in dramatic play or less than half of the interval in elaborated dramatic play.
4. S engages in an activity that suggests he is involved in dramatic play.
5. S engages in no dramatic play.

*Elaborated dramatic play - dramatic play involving at least two people in which there is a variety of props and/or an involved plot.

7. DELAYED GOAL ACCEPTS — DELAYED GOAL DOES NOT ACCEPT

1. S always waits for turn patiently.
2. S usually waits for turn patiently.
3. S waits for turn with difficulty.
4. S waits only with constant reassurance of gratification.
5. S demands immediate gratification.

8. INDEPENDENT (leader) — DEPENDENT (follower)

1. S frequently structures and initiates activities <u>and</u> provides emotional support for peer.
2. S frequently initiates and structures activities <u>or</u> provides emotional support for peer.
3. S occasionally initiates and structures play.
4. S relies on others to structure and initiate activity <u>or</u> for emotional support.
5. S relies on others to structure and initiate activities <u>and</u> for emotional support.

9. ACTIVE — PASSIVE

1. S is vigorously active physically or verbally for entire interval.
2. S is vigorously active physically or verbally for over half of interval.
3. S is equally active and passive during entire interval.
4. S sits or stands quietly for over half of observation interval.
5. S sits or stands quietly for all of observation interval.

10. VARIETY OF ACTIVITIES — REPETITIOUS PLAY

\- - - - -

1. S is engaged in several varied activities during the interval.
2. S is engaged in several activities.
3. S is engaged in between 3 and 4 activities.
4. S is engaged in at least two activities.
5. S is engaged in one activity for the entire observation interval.

11. INNOVATIVE — IMITATIVE

\- - - - -

1. S frequently uses materials in a constructive and unusual way.
2. S occasionally uses ...
3. S is neither innovative nor imitative.
4. S occasionally copies behavior of peers.
5. S frequently copies behavior of peers.

12. POSITIVE RELATIONSHIP WITH HEAD TEACHER — NEGATIVE RELATIONSHIP WITH HEAD TEACHER

\- - - - -

1. S feels especially liked/or trusted by teacher.
2. S feels warmly accepted by teacher.
3. S feels accepted by teacher.
4. S is not sure teacher likes him.
5. S feels coldly rejected by teacher.

DEVELOPMENT OF SOCIAL BEHAVIOR

PARTEN - NEWELL

Unoccupied Behavior: The child apparently is not playing at all, at least not in the usual sense, but occupies himself with watching anything which happens to be of momentary interest. When there is nothing exciting taking place, he plays with his own body, gets on and off chairs, just stands around, follows the teacher or sits in one spot glancing around the room.

Solitary Play: The child plays alone and independently with toys that are different from those used by the children within speaking distance and makes no effort to get close to or speak to the other children. His interest is centered upon his own activity, and he pursues it without reference to what others are doing.

Onlooker Behavior: The child spends most of his time watching the others play. He often talks to the playing children, asks questions or gives suggestions, but does not enter into the play himself. He stands or sits within speaking distance of the group so he can see and hear all that is taking place. Thus, he differs from the unoccupied child, who notices anything that happens to be exciting and is not especially interested in groups of children.

Parallel Play: The child plays independently, but the activity he chooses naturally brings him among other children. He plays with toys which are like those which the children around him are using, but he plays with toys as he sees fit, and does not try to influence the activity of the children near him. Thus, he plays beside, rather than with other children.

Associative Play: The child plays with other children. They are borrowing and lending of play materials, following one another with trains and wagons; mild attempts to control which children may or may not play in the group. All engage in similar, if not identical activity. There is no division of labor and no organization of activity. Each child acts as he wishes, does not subordinate his interest to the group.

Cooperative Play: The child plays within a group that is organized for the purpose of making some material product; of striving to attain some competative goal; of dramatizing situations of adult or group life, or of playing formal games. There is a marked sense of belonging or not belonging to the group. The control of group situation is in the hands of one or two members, who direct the activity of others. The goal as well as the method of attaining it necessitates a division of labor, the taking of different roles by various group members, and the organization of activity so that the efforts of one child are supplemented by those of another.

THE UNIVERSITY OF KANSAS HEAD START EVALUATION AND RESEARCH CENTER
Department of Human Development

SOCIAL INTERACTION OBSERVATION RECORDING FORM

E & R	Center	Class	Obs.	Date	Session
					AM PM

A_1: _____
A_2: _____
A_3: _____
A_4: _____
A_x: _____

Minute 1	Minute 2	Minute 3

V
N

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